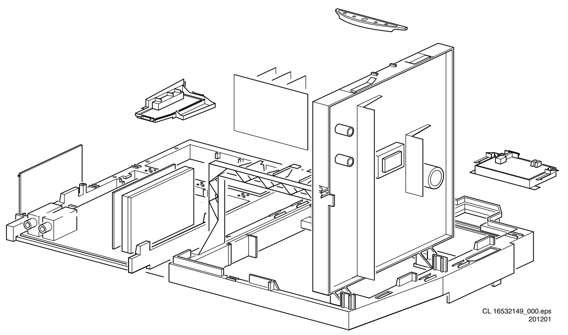
Colour Television **Chassis**

MG3.2E
AA

Service
Service
Service



Service Manual

Contents **Page**

1. Technical Specifications, Connections and Chassis Overview 2
2. Safety & Maintenance Instructions, Warnings and Notes 5
3. Directions for Use 7
4. Mechanical Instructions 24
5. Service Modes, Error Codes and Faultfinding 29
6. *Block Diagram, Testpoints, I^{2}C and Supply Voltage Overview*
   Wiring Diagram 41
   Block Diagram Supply and Deflection 42
   Block Diagram Video 43
   Block Diagram Audio 1 (Excl Wireless Audio) 44
   Block Diagram Audio 2 (Wireless Audio) 45
   I^{2}C-IC Overview 46
   Supply Lines Overview (Part 1) 47
   Supply Lines Overview (Part 2) 48
   Testpoint Overviews 49-52
7. *Electrical Diagrams and PWB's* *Diagram* *PWB*
   Line Deflection (Diagram A1) 53 57-58
   Line Deflection (cont.) (Diagram A2) 54 57-58
   Frame Deflection (Diagram A3) 55 57-58
   Audio Amplifiers (Diagram A4) 56 57-58
   Top Supply Panel (Diagram B) 59 60-61
   Mains Switch Panel (Diagram E) 62 63
   CRT / Auto Scavem Panel (Diagram F) 64 65-66
   DC Shift Panel (Diagram G) 67 67
   DAF Panel (Diagram I) 67 67
   Tuner, IF and Video Processing (Diagram K1) 68 75-88
   Input / Output (Diagram K2) 69 75-88
   Sound Processing (Diagram K3) 70 75-88
   Audio Dolby (Diagram K4) 71 75-88
   Videocontrol & Geometrie (Diagram K6) 72 75-88
   Teletext & Control (Diagram K7) 73 75-88

Contents **Page**

   Source Selection (add to K1) (Diagram K8) 74 75-88
   Feature Box 7 (Diagram L1) 89 92-93
   Feature Box 7 Eagle (Diagram L2) 90 92-93
   Feature Box 7 Falconic (Diagram L3) 91 92-93
   Full Dual Screen / PIP (Diagram M)
   Tuner / IF (Diagram M1) 94 99-100
   Selector Switches (Diagram M2) 95 99-100
   Filter and Buffers (Diagram M3) 96 99-100
   Dual Screen IC and Memory (Diagram M4) 97 99-100
   Audio (Diagram M5) 98 99-100
   Core Top Level (Diagram NA) 101 118/9
   Top-level MCS Module (Diagram NB) 102 118/9
   MCS Module (Diagr. N1-17) 103 118/9
   Side I/O (Diagram O) 120 121
   Top Control (Diagram P) 122 122
   Wireless Surround Transmitter (Diagram R) 123 124
   Auto Scavem (Diagram SC1)125 127/8
   Auto Scavem PCR (Diagram SC2)126 127/8
   Wireless Surround Receiver (Diagram U) 129 130
   Active Speaker Box: Amplifier (Diagram W1) 132 133
   Active Speaker Box: SOPS (Diagram W2) 134 135
   Active Speaker Box: Connector (Diagram W3) 136 136
   Active Speaker Box: LED (Diagram W4) 136 136
8. Alignments 137
9. Circuit Description 146
   Abbreviation List 152
   Data Sheets 156
10 Spare Parts List 162

©Copyright 2001 Philips Consumer Electronics B.V. Eindhoven, The Netherlands. All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, electronic, mechanical, photocopying, or otherwise without the prior permission of Philips.

Published by CO 0172 Service PaCE Printed in the Netherlands Subject to modification EN 3122 785 11890

PHILIPS

1. Technical Specifications, Connections and Chassis Overview

1.1 Technical Specifications

1.1.1 Vision

Display type : CRT, Real Flat WS
Screen size : 28” (70 cm)
: 32" (82 cm)
: 36” (92 cm)
Tuning system : PLL
Colour systems : PAL: B/G, D/K, I, Plus
: SECAM: B/G,D/K,L/L’
: NTSC: playback only
Channel selections : 100 presets
: UVSH
Aerial input : 75 Ω, IEC-type

1.1.2 Sound

Sound systems : FM-mono, AM-mono
: FM/FM: B/G, Czech
: NICAM: B/G, D/K, I, L
Maximum power : 4 x 20 Wrms (int.)
: 2 x 15 Wrms (ext.)

1.1.3 Miscellaneous

Mains voltage : 220 - 240 V
Mains frequency : 50/60 Hz
Ambient temperature : +5 to +45 deg. C
Maximum humidity : 90 % R.H.
Power dissipation : < 200 W
Standby Power dissipation : < 350 mW

1.2 Connections

1.2.1 Front Control/Side Connections

Front and Side View

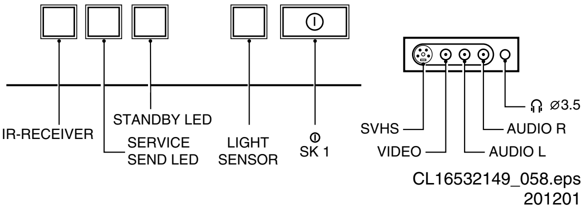

IR-RECEIVER
STANDBY LED
SERVICE SEND LED
LIGHT SENSOR
SK 1
SVHS
VIDEO
AUDIO R
AUDIO L
Ø3.5
CL16532149_058.eps
201201

Figure 1-1

SVHS - In

1	-Y	Ground	⏚
2	-C	Ground	⏚
3	-Y	1 Vpp / 75 Ω	→○
4	-C	0.3 Vpp / 75 Ω	→○

Cinch - In

1	-CVBS	1 Vpp / 75 Ω	→○◎
2	-Audio - L	0.5 Vrms / 10 kΩ	→○◎
3	-Audio - R	0.5 Vrms / 10 kΩ	→○◎

Mini Jack - Out

-Headphone	32 - 600 Ω / 10 mW	◎ 3.5mm

1.2.2 Rear Connections

Connection overview

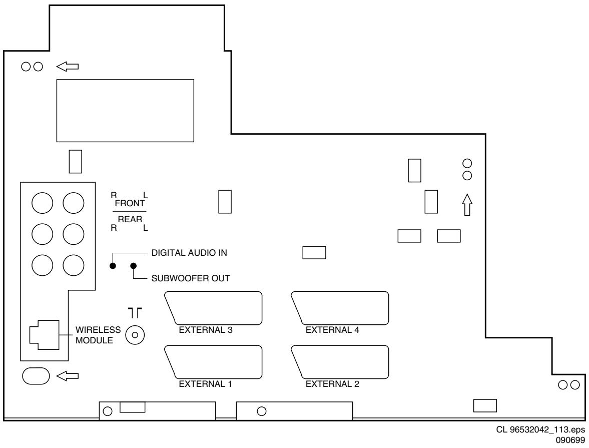

R L FRONT
REAR R L
DIGITAL AUDIO IN
SUBWOOFER OUT
WIRELESS MODULE
EXTERNAL 3
EXTERNAL 4
EXTERNAL 1
EXTERNAL 2
CL 96532042_113.eps
090699

Figure 1-2

Cinch: Front R/L - Out

-Audio - R	0.5 Vrms / 1 kΩ	○→◎
-Audio - L	0.5 Vrms / 1 kΩ	○→◎

Cinch: Rear R/L - Out

-Audio - R	0.5 Vrms / 1 kΩ	○→◎
-Audio - L	0.5 Vrms / 1 kΩ	○→◎

Cinch: Digital Audio - In

-S/PDIF		→○◎

Cinch: Subwoofer - Out

-SW	0.5 Vrms / 1 kΩ	○→◎

RJ45: Wireless Surround Transmitter - Out

1	-CORDL_L	Signal	○→
2	-CORDL_L	Ground	⏚
3	-CORDL_R	Signal	○→
4	-CORDL_R	Ground	⏚
5	-12VP_IN	Supply	○→
6	-SDA	Signal	→○○→
7	-SCL	Signal	○→
8	-Supply	Ground	⏚

Aerial - In

-IEC-type	Coax, 75 Ω	┬┬

External 1 - In/Out (RGB and CVBS)

SCART connector

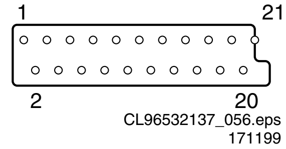


Figure 1-3

1	-Audio - R	0.5 Vrms / 1 kΩ	○→
2	-Audio - R	0.5 Vrms / 10 kΩ	→○
3	-Audio - L	0.5 Vrms / 1 kΩ	○→
4	-Audio	Ground	⏚
5	-Blue	Ground	⏚
6	-Audio - L	0.5 Vrms / 10 kΩ	→○
7	-Blue	0.7 Vpp / 75 Ω	→○
8	-CVBS-status	0 - 1.3 V: INT 4.5 - 7 V: EXT 16:9 9.5 - 12 V: EXT 4:3	
9	-Green	Ground	⏚
10	-		
11	-Green	0.7 Vpp / 75 Ω	→○
12	-		
13	-Red	Ground	⏚
14	-Status	Ground	⏚
15	-Red	0.7 Vpp / 75 Ω	→○
16	-RGB-status / FBL	0 - 0.4 V: INT 1 - 3 V: EXT / 75 Ω	
17	-CVBS	Ground	⏚
18	-FBL	Ground	⏚
19	-CVBS	1 Vpp / 75 Ω	○→
20	-CVBS	1 Vpp / 75 Ω	→○
21	-Shielding	Ground	⏚

External 2 - In/Out for VCR (RGB, Y/C and CVBS)

1	-Audio - R	0.5 Vrms / 1 kΩ	○→
2	-Audio - R	0.5 Vrms / 10 kΩ	→○
3	-Audio - L	0.5 Vrms / 1 kΩ	○→
4	-Audio	Ground	⏚
5	-Blue	Ground	⏚
6	-Audio - L	0.5 Vrms / 10 kΩ	→○
7	-Blue / C	0.7 Vpp / 75 Ω	→○
8	-CVBS-status	0 - 1.3 V: INT 4.5 - 7 V: EXT 16:9 9.5 - 12 V: EXT 4:3	
9	-Green	Ground	⏚
10	-Easy Link	(P50)	→○
11	-Green	0.7 Vpp / 75 Ω	→○
12	-		
13	-Red	Ground	⏚
14	-Status	Ground	⏚
15	-Red / C	0.7 Vpp / 75 Ω	→○
16	-RGB-status / FBL	0 - 0.4 V: INT 1 - 3 V: EXT / 75 Ω	
17	-CVBS	Ground	⏚
18	-FBL	Ground	⏚
19	-Y / CVBS	1 Vpp / 75 Ω	○→
20	-Y / CVBS	1 Vpp / 75 Ω	→○
21	-Shielding	Ground	⏚

External 3 - In (CVBS, Audio)

1	-		
2	-Audio - R	0.5 Vrms / 10 kΩ	→○
3	-		
4	-Audio	Ground	⏚
5	-	Ground	⏚
6	-Audio - L	0.5 Vrms / 10 kΩ	→○
7	-		
8	-CVBS-status	0 - 1.3 V: INT 4.5 - 7 V: EXT 16:9 9.5 - 12 V: EXT 4:3	
9	-	Ground	⏚
10	-		
11	-		
12	-		
13	-	Ground	⏚
14	-Status	Ground	⏚
15	-		
16	-		
17	-CVBS	Ground	⏚
18	-CVBS	Ground	⏚
19	-		
20	-CVBS	1 Vpp / 75 Ω	→○
21	-Shielding	Ground	⏚

External 4 - In (CVBS, Audio)

1	-		
2	-Audio - R	0.5 Vrms / 10 kΩ	→○
3	-		
4	-Audio	Ground	⏚
5	-	Ground	⏚
6	-Audio - L	0.5 Vrms / 10 kΩ	→○
7	-		
8	-CVBS-status	0 - 1.3 V: INT 4.5 - 7 V: EXT 16:9 9.5 - 12 V: EXT 4:3	
9	-	Ground	⏚
10	-		
11	-		
12	-		
13	-	Ground	⏚
14	-Status	Ground	⏚
15	-		
16	-		
17	-CVBS	Ground	⏚
18	-CVBS	Ground	⏚
19	-		
20	-CVBS	1 Vpp / 75 Ω	→○
21	-Shielding	Ground	⏚

1.3 Chassis Overview

PWB Location

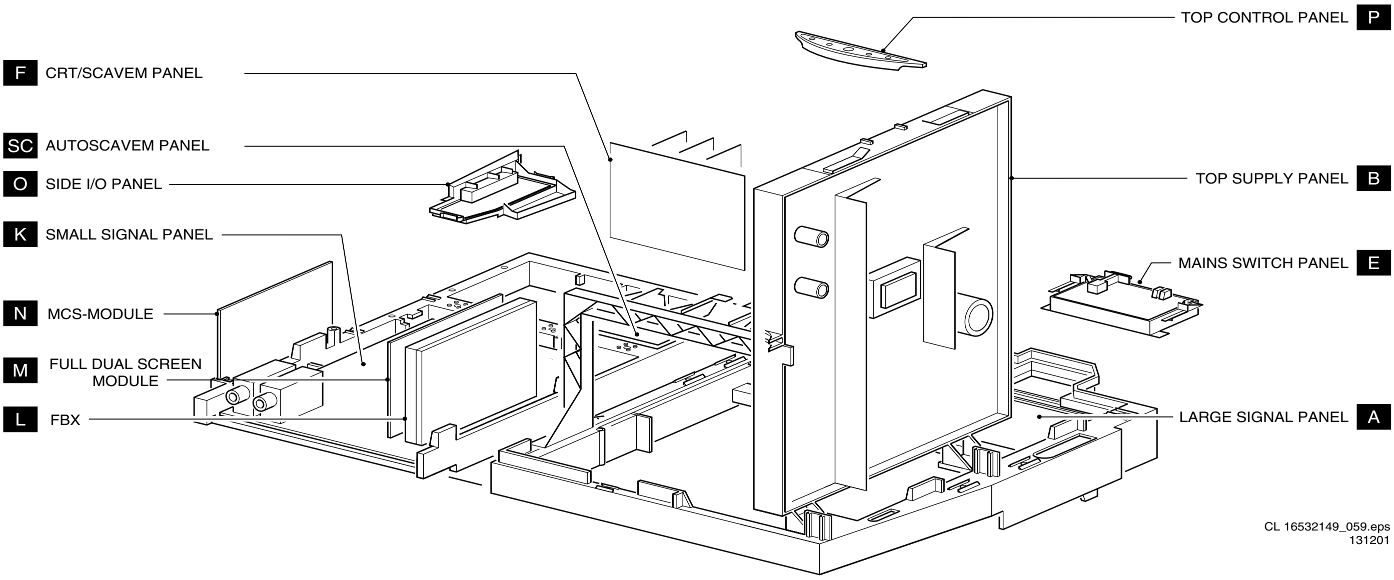

TOP CONTROL PANEL P
F CRT/SCAVEM PANEL
SC AUTOSCAVEM PANEL
O SIDE I/O PANEL
TOP SUPPLY PANEL B
K SMALL SIGNAL PANEL
MAINS SWITCH PANEL E
N MCS-MODULE
M FULL DUAL SCREEN MODULE
L FBX
LARGE SIGNAL PANEL A
CL 16532149_059.eps
131201

Figure 1-4

2. Safety and Maintenance Instructions, Warnings, and Notes

2.1 Safety Instructions

Safety regulations require that **during** a repair:

- Connect the set to the mains via an isolation transformer, as there are 'hot' parts in this chassis.
- Replace safety components, indicated by the symbol ▲, only by components identical to the original ones. Any other component substitution (other than original type) may increase risk of fire or electrical shock hazard.
- Wear safety goggles when you replace the CRT.

Safety regulations require that **after** a repair, you must return the set in its original condition. Pay, in particular, attention to the following points:

- General repair instruction: as a strict precaution, we advise you to re-solder the solder connections through which the horizontal deflection current is flowing. In particular this is valid for the:
    1. pins of the line output transformer (LOT).
    2. fly-back capacitor(s).
    3. S-correction capacitor(s).
    4. line output transistor.
    5. pins of the connector with wires to the deflection coil.
    6. other components through which the deflection current flows.

Note: This re-soldering is advised to prevent bad connections due to metal fatigue in solder connections, and is therefore only necessary for television sets more than two years old.

- Route the wire trees and EHT cable correctly and secure them with the mounted cable clamps.
- Check the insulation of the mains cord for external damage.
- Check the strain relief of the mains cord for proper function, to prevent the cord from touching the CRT, hot components, or heat sinks.
- Check the electrical DC resistance between the mains plug and the secondary side (only for sets that have an isolated power supply). Do this as follows:
    1. Unplug the mains cord and connect a wire between the two pins of the mains plug.
    2. Turn on the main power switch (keep the mains cord unplugged!).
    3. Measure the resistance value between the pins of the mains plug and the metal shielding of the tuner or the aerial connection of the set. The reading should be between 4.5 MΩ and 12 MΩ.
    4. Switch the TV 'off' and remove the wire between the two pins of the mains plug.
- Check the cabinet for defects, to prevent the possibility of the customer touching any internal parts.

2.2 Maintenance Instructions

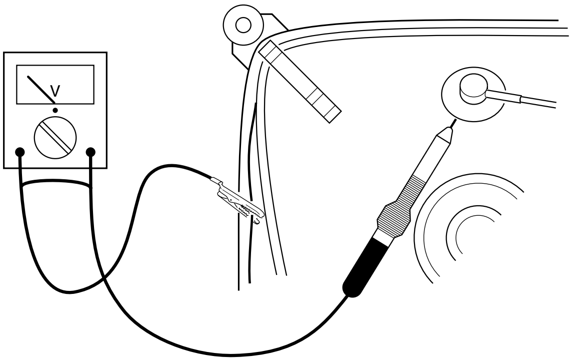
We recommend a maintenance inspection carried out by qualified service personnel. The interval depends on the usage conditions:

- When a customer uses the set under normal circumstances, for example in a living room, the recommended interval is three to five years.
- When a customer uses the set in an environment with higher dust, grease, or moisture levels, for example in a kitchen, the recommended interval is one year.
- The maintenance inspection includes the following actions:
    1. Perform the 'general repair instruction' noted above.
    2. Clean the power supply and deflection circuitry on the chassis.
    3. Clean the picture tube panel and the neck of the picture tube.

2.3 Warnings

- In order to prevent damage to ICs and transistors, avoid all high voltage flashovers. In order to prevent damage to the picture tube, use the method shown in Fig. 2-1, to discharge the picture tube. Use a high voltage probe and a multi-meter (position V_{DC}). Discharge until the meter reading is 0 V (after approx. 30 s).

Discharge Picture Tube



CL96532156_040.eps
140501

Figure 2-1

- All ICs and many other semiconductors are susceptible to electrostatic discharges (ESD, symbol ⚠). Careless handling during repair can reduce life drastically. Make sure that, during repair, you are connected with the same potential as the mass of the set by a wristband with resistance. Keep components and tools also at this potential. Available ESD protection equipment:
    - Complete kit ESD3 (small tablemat, wristband, connection box, extension cable and ground cable) 4822 310 10671.
    - Wristband tester 4822 344 13999.
- Together with the deflection unit and any multi-pole unit, flat square picture tubes form an integrated unit. The deflection and the multi-pole units are set optimally at the factory. We do not recommend adjusting this unit during repair.
- Be careful during measurements in the high voltage section and on the picture tube.
- Never replace modules or other components while the unit is 'on'.
- When you align the set, use plastic rather than metal tools. This will prevent any short circuits and the danger of a circuit becoming unstable.

2.4 Notes

- Measure the voltages and waveforms with regard to the chassis (= tuner) ground (⏚), or hot ground (⏚), depending on the tested area of circuitry.
- The voltages and waveforms shown in the diagrams are indicative. Measure them in the Service Default Mode (see chapter 5) with a colour bar signal and stereo sound (L: 3 kHz, R: 1 kHz unless stated otherwise) and picture carrier at 475.25 MHz (PAL) or 61.25 MHz (NTSC, channel 3).
- Where necessary, measure the waveforms and voltages with (╥) and without (⚹) aerial signal. Measure the voltages in the power supply section both in normal operation (⏽) and in standby (⏻). These values are indicated by means of the appropriate symbols.
- The picture tube panel has printed spark gaps. Each spark gap is connected between an electrode of the picture tube and the Aquadag coating.

- The semiconductors indicated in the circuit diagram and in the parts lists, are interchangeable per position with the semiconductors in the unit, irrespective of the type indication on these semiconductors.
- Manufactured under license from Dolby Laboratories. ‘Dolby’, ‘Pro Logic’ and the ‘double-D symbol’, are trademarks of Dolby Laboratories.

Dolby PL Symbol

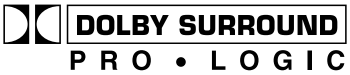
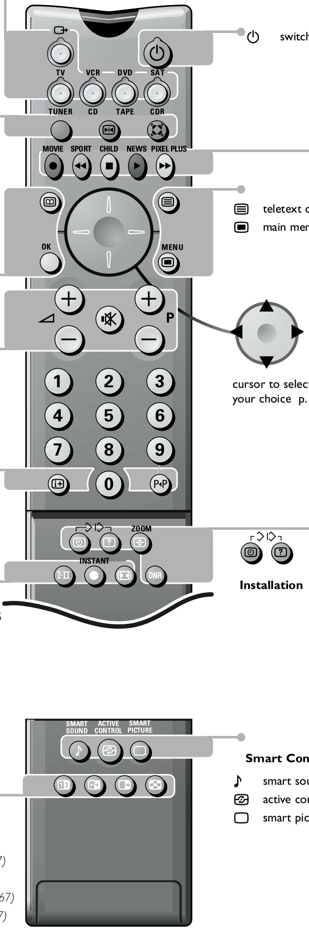


Figure 2-2

3. Directions for Use

Installation

Your remote control



Peripherals p. 31
⮕ selection of EXT1, EXT2, EXT3, EXT4 or FRONT
TV, videorecorder (**VCR**), **DVD**, Satellite (**SAT**), **TUNER**, **CD**, **TAPE** or cd-recordable (**CDR**) selection.

○ no function
⊡ freeze the picture p. 10
hold teletext page p. 26
⛶ surround modes p. 10

⊡ NEXTVIEW on/off p. 10
OK activate your choice

◿ volume up/down p. 10
🔇 sound mute p. 10
P programme selection p. 10

⊡ on screen info p. 10
P<P previous programme p. 10
-/-- video recorder function p. 10

I-II bilingual choice/sound info p.12
TXT language group selection p. 25

EasyLink p. 12
● INSTANT recording

⊡ picture format p. 12

Dual Screen p. 18-19
⊡ dual screen on
⊡ swap screens *(only for 32-36PW9767)*
⊡ still picture
⊡ multipip p. 11 *(only for 32-36PW9767)*
⊡ strobe p. 11 *(only for 28-32PW9617)*

⏻ switch to standby p. 10

▤ teletext on/off p. 25
▣ main menu on/off p. 13

cursor to select your choice p. 13

Installation p. 5

Colour keys
- select TV channels by theme p. 12
- direct teletext page or subject selection p. 25
- Pixel Plus p. 12

Audio and Video equipment
p. 31-32

Teletext p. 26
⊚ time display/subpage selection
? solution to puzzles
display PDC/VPS code
⊕ enlarge

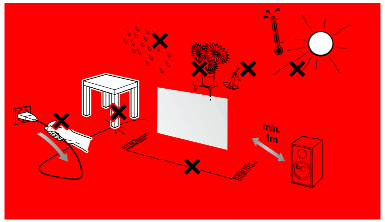
DNR reduce image noise p. 12

Zoom p. 12
⊕ zoom on/off

Smart Controls
♪ smart sound p. 11
⊡ active control p. 11
▢ smart picture p. 11

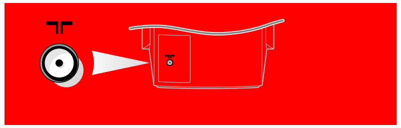
Preparation

❶ **Place the TV on a solid surface.**

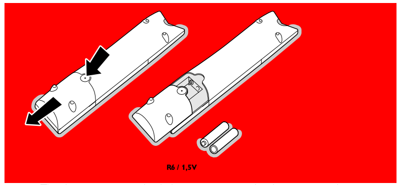


For ventilation, leave at least 5 cm free all around the TV. Do not place the TV on a carpet.
To prevent any unsafe situations, do not place any objects on top of the TV. Avoid heat, direct sunlight and exposure to rain or water.
Keep mobile telephones at a safe distance to avoid disturbances in picture and sound.

❷ **Insert the aerial plug** firmly into the aerial socket ╦ at the back of the TV. For best picture quality use the suppressor-aerial cable supplied.



❸ Remote control: Remove the cover of the battery compartment.
Insert the 2 batteries supplied (Type R6-1,5V).
Press the **TV** key to be sure your remote control is in the TV mode.



The batteries supplied do not contain the heavy metals mercury and cadmium. Nevertheless in many countries exhausted batteries may not be disposed of with your household waste. Please check on how to dispose of exhausted batteries according to local regulations.

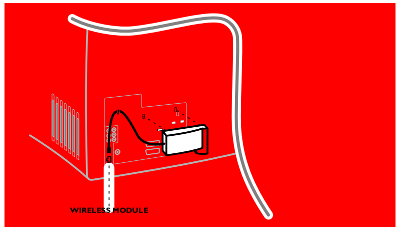
Note: this remote control functions with TVs and other equipment which use the RC6 signalling standard.

❹ **Wireless surround speaker system.**
Supplied and separately packed with your TV are:
- a wireless transmitter module with an integrated cable
- 2 surround loudspeakers
- connection cable

Wireless transmitter module

- Attach the wireless module to the back of the TV as shown.
- Connect the attached cable to the wireless module connector.

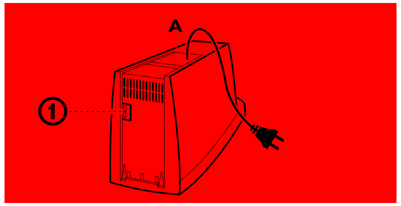
Note: Make sure you only switch the TV on after you have plugged in the wireless module.

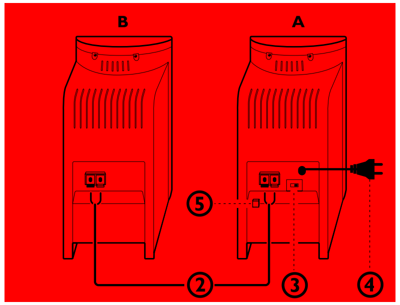


❺ **Insert the mains plug of the TV** in the wall socket having a mains voltage of 220V-240V.
To prevent damaging the mains (AC) cord which could cause a fire or electric shock, do not place the TV on the cord.

❻ **Switch the TV on :** Press the power switch ⏻ on the front of your TV.
A green indicator on the front of the TV lights up and the screen comes on.
If the indicator is red, press the **- P +** keys on the remote control.

The green lamp blinks every time you press a key on the remote control.
*When you switch on your set **for the first time**, the menu* **LANGUAGE** *automatically appears on the screen. The explanation appears in different languages one at a time. Choose your own language and press the* **OK** *key on the remote control.*



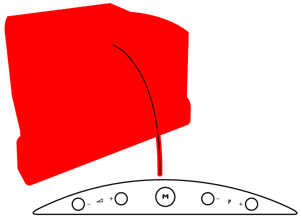


Surround loudspeakers

There are two surround loudspeakers supplied. One is the active loudspeaker A. The other loudspeaker B is a passive one which has to be connected with the active loudspeaker.

- The slide channel switch ① at the bottom of the active loudspeaker has been set default to channel 1 in the factory. See also Sound Setup, p. 9.
- Connect the active to the passive loudspeaker with the supplied speaker cable ②.
  Insert the marked wire into the openings of the same coloured connector clips on both speakers. Do not insert the wires too far.
- The Surround sound loudspeakers can be located behind or to either side of the listener. The front of the loudspeakers do not have to face the listener.
  The distance between the TV and the surround speakers should not exceed 15 m.
  Note: In rare occasions people moving around close to the TV may interfere with the sound transmission.
- Set the position switch ③ to the right if the active loudspeaker is positioned to the right side of the listener, to the left if it is positioned to the left side of the listener (seen from the point of view of watching the TV).
- Connect the active loudspeaker to the mains with the mains cable ④.
- Switch on the active loudspeaker with the **POWER** switch ⑤.
  The red indicator at the front of the active surround speaker shows that the speaker is in standby.
  During sound transmission the indicator turns to green. 10-15 min. after the sound transmission of the TV has stopped, the indicator turns back to red to indicate the low power standby.
  To switch the active speaker off, use the **POWER** switch.

Keys on top of the TV

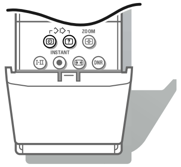


Should your remote control be lost or broken you can still change some of the basic picture settings with the keys on top of the TV.

Press the **M** key repeatedly to select **Volume**, **Brightness**, **Colour**, **Contrast**, **Treble** and **Bass**.
Press the **P** - or + keys to carry out the selected adjustment.
When the menu adjustment is not displayed, the **P-** or **+** keys enable you to select the TV channels, the ◿ - or + keys to adjust the volume.

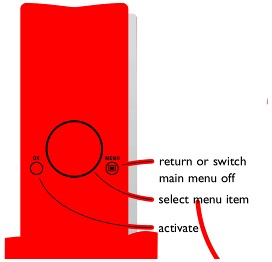
The selected adjustment automatically switches off when no action has been executed for 10 seconds.

Select the INSTALLATION menu

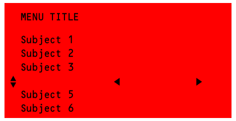


1. Open the door of the remote control.
2. Press ⓞ and ? at the same time.

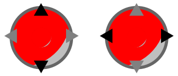
To use the menus



1. Use the cursor in the up/down, left/right directions to select a menu item.
2. Press the **OK** key to activate.
3. Use the ▣ key to return or to switch the menu off.



```
MENU TITLE
Subject 1
Subject 2
Subject 3
◆                 ◀          ▶
Subject 5
Subject 6
```



Store TV channels

After the new or extra TV channels have been stored, the TV automatically transfers those TV channels to the video recorder if it is equipped with the EasyLink function. The message ***EasyLink : Downloading ......*** *appears on the screen. The programme list of the video recorder is now the same as the one of the TV. If the TV is connected to a video recorder which supports the* NEXTVIEWLink *function, the TV also automatically transfers the language and country selections to the video recorder.*

Select the menu language and country

First, select your language and country.

```
◆
Menu Language
```

```
◆
English
....
....
```

```
◆
UK
....
....
```

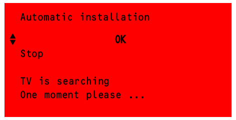
1. Select **Menu language** and press the **OK** key.
2. Select your language and press the **OK** key.
   Use the cursor up/down to scroll through the list and to bring up other languages which are not displayed on the screen at present.
3. Select **Country** and press the **OK** key.
4. Select the country where you are now located and press the **OK** key.
   Use the cursor up/down to scroll through the list and bring up other countries which are not displayed on the screen at present.

Select **Other** when none of the countries applies.

You can now search for and store the TV channels in two different ways: using **automatic installation** or **manual installation** (tuning-in channel by channel).
Select your choice and press the **OK** key.

Automatic installation

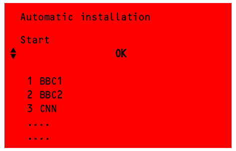
In the Automatic Installation menu select **Start** and press the **OK** key to activate the searching. All TV channels are searched for and stored automatically.



```
Automatic installation
                  OK
Stop

TV is searching
One moment please ...
```

If a cable system which broadcasts ACI (Automatic Channel Installation) or a TV channel transmitting a teletext page with the frequencies and programme names of all the TV channels which can be received, is detected, the search is stopped and a programme list appears.

The programme list is automatically filled with all the programme numbers and names of the TV channels transmitted.



```
Automatic installation

Start
                  OK

 1 BBC1
 2 BBC2
 3 CNN
 ....
 ....
```

It is possible that the cable company or the TV channel displays a broadcast selection menu. Layout and items are defined by the cable company or the TV channel.
Make your choice with the cursor and press the ***OK*** *key.*

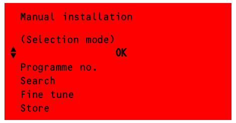
To exit from the menu press the ▣ key on the remote control.

Go on to page 7.

Manual installation

Searching for and storing TV channels is done channel by channel.
You must go through every step of the Manual Installation menu.

Selection mode is only present and lights up if the country selected also offers the channel option (C-channels for aerial, S-channels for cable channels).
You can choose either channel or frequency mode.



```
Manual installation

(Selection mode)
                  OK
Programme no.
Search
Fine tune
Store
```

① Select the TV system
Select the country or part of the world from where you want to receive the TV channel.
If you are connected to a cable system, select your country or part of the world where you are now located.

② Press the cursor down and enter the programme number with the digit keys.

③ Search for a TV channel
Press the cursor left/right.
The frequency or the channel number increases until a TV channel is found.

Direct selection of a TV channel
If you know the frequency, the C- or S-channel number, enter it directly with the digit keys 0 to 9.
Ask for a list from your cable company or dealer, alternatively consult the Table of frequencies on the inside backcover of this handbook.

④ Fine tune
In case of poor reception, you can improve the reception by adjusting the frequency with the cursor left/right.

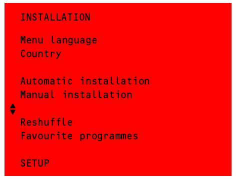
⑤ To store your TV channel, select **Store** and press the **OK** key.

Repeat steps ① to ⑤ to store another TV channel.

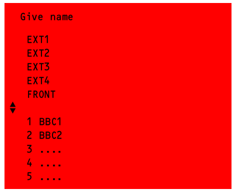
⑥ To exit from the menu press the ▣ key on the remote control.

Give name

It is possible to change the name stored in the memory or to assign a name to a TV channel which has not yet been entered. A name with up to 5 letters or numbers can be given to the programme numbers 0 to 99. For example SUPER, BBC1,...
Between 99 and 0 you can also name any peripherals that are connected to a euroconnector.



```
INSTALLATION

Menu language
Country

Automatic installation
Manual installation

Reshuffle
Favourite programmes

SETUP
```

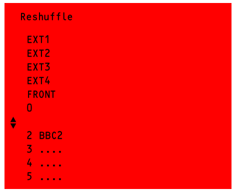


```
Give name

 EXT1
 EXT2
 EXT3
 EXT4
 FRONT

 1 BBC1
 2 BBC2
 3 ....
 4 ....
 5 ....
```

① Select **Give name** in the **INSTALLATION** menu and press the **OK** key.
② Select the programme number.
③ Press the **OK** key.
④ Select the character with the cursor up/down.
⑤ Select the following position with the cursor right.
⑥ Select the following character.
⑦ Press the **OK** key when finished.
⑧ Press the ▣ key to return to the **INSTALLATION** menu.

Space, numbers and other special characters are located between Z and A.

Reshuffle the programme list



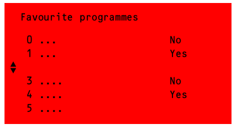
```
Reshuffle

 EXT1
 EXT2
 EXT3
 EXT4
 FRONT
 0

 2 BBC2
 3 ....
 4 ....
 5 ....
```

According to your preference you **can** change the order of the stored TV channels.

① Select **Reshuffle** in the **INSTALLATION** menu and press the **OK** key.
② Select the programme number you want to exchange.
③ Press the **OK** key.
④ Select the new number you want to exchange it with.
⑤ Press the **OK** key.
Repeat the operation until all TV channels are allocated as you like.
⑥ Press the ▣ key to return to the **INSTALLATION** menu.

Select Favourite TV channels

After leaving the installation you can browse through the TV channels by pressing the **- P +** keys. Only those TV channels which are in the favourite list will be displayed. Non-favourite TV channels can still be selected with the digit keys. By default all stored TV channels are added to the favourite list.



```
Favourite programmes

 0 ...                  No
 1 ...                  Yes

 3 ....                 No
 4 ....                 Yes
 5 ....
```

① Select **Favourite programmes** in the **INSTALLATION** menu and press the **OK** key.
② Select your favourite programme number.
③ Select **Yes** or **No** with the cursor left/right.
④ Repeat for every TV channel you want to make a favourite or a non-favourite TV channel.
⑤ Press the ▣ key to return to the **INSTALLATION** menu.

In order for NEXTVIEW to function properly, the first TV channel from the favourite list should also broadcast the correct local date and time via teletext.

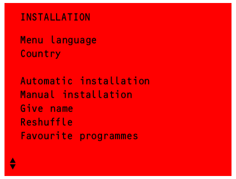
Install TV Setup

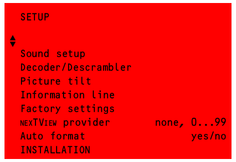
The Setup menu allows you to adjust initial settings, i.e. those which are not related to the installation of the TV channels.
The Setup menu contains items that control the settings of the TV's functions, features, services and peripherals you may have connected.

❶ Use the cursor in the up/down, left/right directions to select the menu item.

❷ Use the **OK** key to activate.

❸ Use the ▣ key to return or switch menu off.





Digital sources

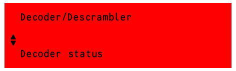
See Connect Peripheral Equipment, p. 29 to connect your digital equipment, like a DVD, a digital satellite tuner or a similar digital device.

Sound Setup

See p. 9.

Decoder/Descrambler programme numbers

If a decoder or a descrambler is connected, see p. 27, you can define one or more programme numbers as decoder programme numbers.



Press the cursor left/right to select the input used to connect to your decoder **Off**, **EXT1** or **EXT2**.
Select **Off** if you do not want the selected programme number being activated as a decoder programme number.

Select **EXT2** *when the decoder is connected to your EasyLink video recorder.*
When selecting the decoder, the message ***EasyLink: Downloading Presets....*** *appears on the screen.*

Picture tilt

Select **Picture tilt** with the cursor up/down.
Keep the cursor left/right pressed to adjust the rotation of the picture.

Information line

Select **On** and after the selection of a TV programme or after pressing the ⓘ key on the remote control, a TV channel which broadcasts teletext may transmit the name of the TV channel, the programme name or another message. This is displayed on screen next to information about sound, picture format and DNR setting.
When selected **Off**, only sound, picture format and DNR information is displayed after the selection of a TV channel or after pressing the ⓘ key.

Factory settings

Select **Factory settings** and press the **OK** key to restore picture and sound settings, predefined in the factory.

Auto format

Selecting **Yes** causes the screen to automatically fill as much of the picture as possible when TV programmes are not carrying special signals detecting the correct screen format.
With the ⊡ key on the remote control you can still select other picture formats. See p. 12.

NEXTVIEW provider

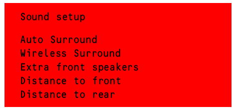
Most broadcasters in Europe are offering teletext pages containing the day's programme schedule. These pages can be requested by switching the TV to Teletext Guide.
An increasing number of broadcasters are offering an extended programme guide service called NEXTVIEW.
NEXTVIEW is a new way of presenting programme schedules and offers more features than basic teletext.
With NEXTVIEW it is possible to show for instance all the movies or children programmes for tonight or the following days.

If you select **None** as NEXTVIEW provider, the TV will capture all data from the available TV channels which broadcast NEXTVIEW. Broadcaster defined menus will not be available.
If you select a programme number of a TV channel stored in the favourite list as NEXTVIEW provider, the selected TV channel will provide NEXTVIEW data and additional information of its own broadcasts as well as from other (non selected) TV channels.
Normally you will select the NEXTVIEW provider that transmits most information in your language. You can make the best selection via information from TV announcements or from the newspapers.

Important:
In order for NEXTVIEW to function properly, the first TV channel from the favourite list should also broadcast the correct local date and time via teletext.
Please check at startup if the time and date are correct in the NEXTVIEW screen.

Remark:
Not all TV channels support NEXTVIEW.
How to make use of NEXTVIEW, see p. 20.

Sound Setup menu



Auto Surround

Sometimes the broadcaster transmits special signals for Surround Sound encoded programmes.
The TV automatically switches to the best surround sound mode when **Auto Surround** is switched **On**.
However it is possible to overwrite this setting.

Wireless Surround

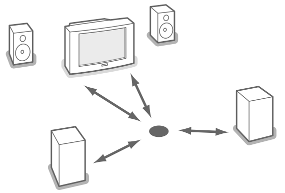
The system has already been configured in the factory to work properly.
In rare circumstances, interference from external RF (wireless) equipment such as RF headphones, mobile phones or remote controls for lights, may occur. Then it may be necessary to shift to another wireless channel.
Use the cursor left/right to select another channel.
Important:
Always be sure that the active surround speaker and the Wireless Surround setting are switched to the same transmitting channel. Otherwise no sound or only a distorted sound will be heard on the surround speakers.

When the TV is tuned to a channel in the neighbourhood of 864 MHz (433 MHz in case you purchased a TV with a typenumber in the range 28-32PW9617/01 or /58 or 32-36PW9767/01 or /58), the transmitter is switched off because no RF surround sound is possible. This is necessary to avoid interfered picture. You can improve the picture quality by using the suppressor aerial cable supplied.

In rare cases, when no RF surround sound is possible or when there is too much interference, use the wired back up solution with a 3.5 mm stereo jack. In this case select **Off** in the Wireless surround menu item. See Connect Peripheral equipment, p. 28.

Extra front speakers

See Connect Extra loudspeakers, Amplifier, p. 30.
If no extra front speakers/amplifier are connected, do not change the predefined factory setting which is **No (TV)**.



Distance to front

Select the distance between the TV and the place you sit to watch TV.

Distance to rear

Select the distance between the rear surround speakers and the place you sit.

To exit from the menu press the ▣ key repeatedly.

Operation

Use of the remote control

Select peripherals
Press this key repeatedly to select **EXT1**, **EXT2**, **EXT3**, **EXT4** or **FRONT**, according to where you connected the peripherals (p. 31).

TV VCR DVD SAT TUNER CD TAPE CDR
Press one of these keys to use the remote control directly in the TV, video recorder, DVD or satellite mode. A green indicator lights up. Press the same key again within 3 seconds to use the remote control in the mode indicated below the key (tuner, CD, tape or CD-recordable).
A red indicator lights up.
Press the key again to return to the function mentioned above the key.

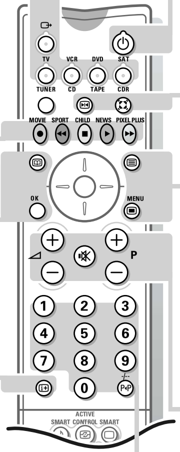
○ no function

● ◀◀ ■ ▶ ▶▶ **Video recorder** see p. 31

NEXTVIEW on/off see p. 20

OK Press this key to activate your choice, when in the menus.

Screen information
Press for 5 seconds to activate/de-activate the extended or reduced display of TV channel and programme information on the screen.
Press briefly to display information about the selected TV channel and programme, the sound reception, picture settings, the selected DNR setting and the remaining time set with the sleeptimer.



0/9 Digit keys
To select a TV channel.
For a two digit programme number, enter the second digit within 2 seconds.
To switch immediately to a selected one digit TV channel, keep the digit key pressed a bit longer.

P◁P Previous programme
The previously selected TV channel is displayed.
The -/-- indication is only for video recorder.

Standby
The set is switched off and the red indicator (orange when acquiring NEXTVIEW information) lights up. When acquiring NEXTVIEW the TV is switched to full standby after a period of max. 1 hour and the red indicator lights up.
To switch the TV on again, press **- P +** or the digit keys.
If your EasyLink video recorder has the system standby function and you press the standby key for 3 seconds, both the TV and video recorder are switched to standby.

Freeze
To activate/de-activate the frozen picture and to hold a teletext page.

Surround mode
Press this key repeatedly to select another available surround mode: Dolby Pro Logic, 3D Surround, Dolby 3 Stereo, Stereo, Hall or Dolby Digital.

Teletext on/off see p. 25

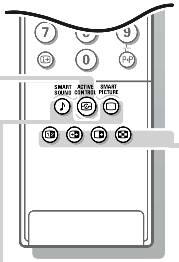
Main menu on/off see p. 13

Volume
Press + or - to adjust the volume.

Mute
Temporarily interrupt the sound or restore it.

P Programme selection
To browse through the TV channels activated in the Favourite Programme menu.

Active control
Active control is a pro-active and automatic system. The TV continuously measures and corrects all incoming signals in order to provide the best picture possible. Thanks to the Ambient Light Sensor which measures the light conditions of the room in which the TV is situated, the contrast, dynamic contrast, brightness and colour picture settings are adjusted automatically. The light sensor is active when the Active control function is switched to Medium (if provided) or Maximum. Press the key repeatedly to select the Active Control values Off, Minimum, Medium (if provided) or Maximum.
Off Sharpness and Dynamic Contrast are controlled automatically
Minimum Sharpness, Dynamic Contrast and Noise Reduction are controlled automatically.
(**Medium** Dynamic Contrast, Colour, Sharpness and Noise reduction are controlled automatically.)
Maximum Contrast (if provided), Dynamic Contrast, Colour, Sharpness and Noise reduction are controlled automatically.
Press the cursor in the up/down directions while the selected Active Control setting information is on top of the screen.
The Active Control menu appears.
The picture settings are being adapted continuously and automatically.
The menu items cannot be selected.
Colour enhancement (green enhancement, skintone correction and blue stretch) is switched on with certain Smart Picture selections.
Press the cursor in the up/down directions again to switch off the menu.



For 32-36PW9767

Dual screen see p. 18

Multipip
Press to switch on Multipip.
A menu line **MOSAIC** appears.
Select the desired function with the cursor left/right and press the **OK** key.
Scan: a scan of the TV channels placed in the favourite list is performed.
Press the **OK** key again to have the continuation of the list.
Photo Finish: the main picture is displayed in successive frozen pictures.
Press the **OK** key again to have a new sequence of frozen pictures.
Strobe: the picture is reproduced image by image.
Press the **OK** key again to have a faster speed.
Press to switch off multipip.

For 28-32PW9617

Dual screen see p. 19

no function

Strobe
Press this key to reproduce the picture image by image.
Press the key again to have a faster speed.
Press the again to switch off the strobe function.

Smart Keys
To select predefined picture and sound settings.

Smart Sound
Each time it is pressed, a different sound setting is selected, corresponding with specific factory settings of treble and bass.

Smart Picture
Each time it is pressed, a different picture setting is selected, corresponding with specific factory settings of Contrast, Colour, Sharpness, Dynamic Contrast and Colour enhancement.

Personal refers to the personal preference settings of picture and sound selected in the picture and sound menu.

Remark: the moment you are in a predefined smart sound or picture setting and you modify a setting in the picture or sound menu, all values of the menu will overwrite the previously made settings.

I-II Bilingual choice and sound mode selection

Press this key
- to switch from **Stereo** to **Mono** sound, in case of stereo transmission, or from **Nicam Stereo** to **Nicam available**, in case of digital transmission;
- to choose between language I (Dual I) or language II (Dual II), in case of bilingual transmission. The setting is separately stored for each TV channel.

● Instant record

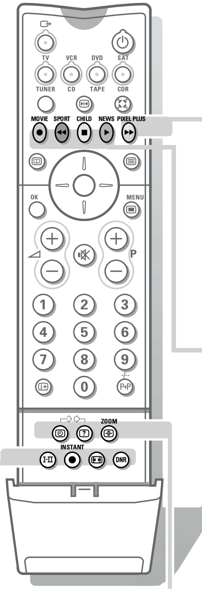
If your video recorder has the EasyLink function the **INSTANT** ● key for record can be operated in the TV mode.

Picture format

Press this key repeatedly to select another picture format: 4:3, Movie Expand 14:9, Movie Expand 16:9 with or without subtitling, Wide Screen, Super zoom or Automatic (when Auto format is set to Yes in the **SETUP** menu).
Auto format makes the picture to fill the screen as much as possible.
Sometimes also video recorder programmes carry special signals which will automatically switch the TV to the correct screen format.
Auto format is disabled when in Dual screen.
When in Automatic, Movie Expand 14:9 or 16:9 or Super zoom picture format you can make subtitles visible with the cursor up/down.

DNR Dyn. Noise Reduction

To reduce the image noise and improve picture quality when receiving weak signals. Press the DNR key to select **Off**, **Minimum**, **Medium** or **Maximum**.



Switching Pixel Plus demo on/off

Press the **PIXEL PLUS** key.
The TV screen is divided into 2 parts:
- in the left part Pixel Plus and Digital Natural Motion switched off;
- in the right part Pixel Plus and Digital Natural Motion switched on.

Press the **PIXEL PLUS** key again to switch the Pixel Plus demo off.

Select TV channels by theme

If programmes in the TV guide of NEXTVIEW have defined themes, it is possible to quickly select TV programmes with the coloured keys.

Press the red, green, yellow or blue key to select one of the four predefined theme categories **MOVIES, SPORTS, CHILDREN, NEWS.**
The TV switches to the first TV channel broadcasting a programme of the selected theme. At the same time a list of all the TV channels currently transmitting a programme of the selected theme appears on the screen.
Use the cursor up/down to select a programme.
Press the same colour key again to remove the list.

Time display

The time, downloaded from the TV channel (with teletext) stored on programme number 1 or the lowest favourite programme number, is displayed on the screen.

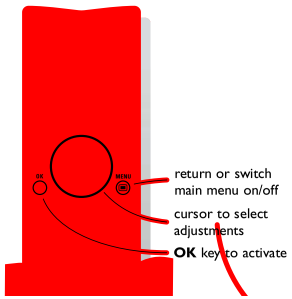
This function is not available when continuous subtitles have been switched on.

Teletext functions see p. 26

Zoom

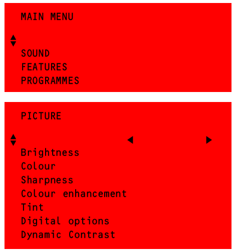
Press the **ZOOM** key repeatedly to select one of the zoom magnifications (x1, x4, x9, x16). Additionally you can shift the selected zoom window over the screen with the cursor.
Press to activate/de-activate the continuous display of the zoom magnification.
The zoom window is reset after: selecting another TV channel, another picture format or when another picture format is selected automatically.
Zooming is disabled in Dual screen mode.

Use of the menus


OK
MENU
return or switch main menu on/off
cursor to select adjustments
OK key to activate

① Press the key to display/cancel the **MAIN MENU**.
② Use the cursor in the up/down directions to select the **PICTURE, SOUND** or **FEATURES** menu or to select **PROGRAMMES**.
③ Press the cursor right to activate the selected menu.
④ Use the cursor in the up/down, left/right directions to select the menu item.
⑤ Use the **OK** key to activate.
⑥ Press the key repeatedly to return or to switch the menu off.

Picture menu



```
MAIN MENU

SOUND
FEATURES
PROGRAMMES
```

```
PICTURE

Brightness
Colour
Sharpness
Colour enhancement
Tint
Digital options
Dynamic Contrast
```

If an NTSC peripheral is connected to one of the euroconnectors, the option Hue also appears.

Colour enhancement
When activated, this feature automatically controls skin tone correction, green enhancement and blue stretch. It makes the colours more vivid.
Select **On** or **Off** in order to activate/de-activate Colour enhancement.

Tint
Select the colour temperature: **Normal**, **Warm** or **Cool**.

Digital options
Although Pixel Plus is the most ideal setting, it may be preferable, dependent on your own preference, to select Double lines ,or 100 Hz Digital Scan.

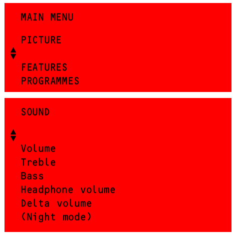
- **100 Hz Dig. Scan** = 100 Hz + Dig. Scan (Field and line flicker reduction) without motion compensation.
- **Pixel Plus** = creates near High Definition performance inside the TV on the basis of a regular input signal.
  The number of lines are increased and the number of pixels on a line are doubled in combination with Digital Natural Motion.
  As such Pixel Plus enhances both regular broadcast signals and DVD or Digital TV input towards unparalleled sharpness and depth, near High Definition and natural detail.
- **Double Lines** = provides for a doubling of vertical resolution which adds astonishing sharpness and a total absence of visible picture lines.
  Motion compensation reduces jitter and offers smooth, yet sharp motion reproduction.

Note:
Pixel Plus is not active when Multi screen (Strobe), Teletext (Except when Subtitling is activated), NEXTVIEW or Teletext Dual screen is selected.

Dynamic Contrast
To make the contrast in the darker and the brighter picture areas more noticeable, select the **Med** setting.
In certain circumstances it may be preferred to select **Min**, **Max** or **Off**.

The modified adjustments for Contrast, Brightness, Colour, Sharpness, Colour enhancement, Tint, Digital options and Dynamic Contrast are automatically stored for all TV channels.
Select **Factory settings** in the Setup menu to restore the predefined factory settings, see p. 8.

Sound menu


MAIN MENU
PICTURE
FEATURES
PROGRAMMES

SOUND
Volume
Treble
Bass
Headphone volume
Delta volume
(Night mode)

The modified adjustments for Volume, Treble and Bass are automatically stored for all TV channels.
Select **Factory settings** in the Setup menu to restore the predefined factory settings, see p. 8.

Select **Surround settings** in the Sound menu.

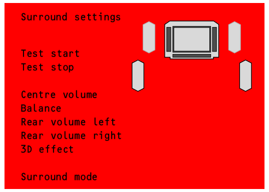
The contents of the Surround settings menu depends on the selected Surround modes.

Surround settings	Stereo	3D surround	Pro Logic	MPEG Multichannel (via a digital source)	Dolby Digital (via a digital source)	Dolby 3 Stereo	Hall
Test start	●	●	●	●	●	●	●
Test stop	●	●	●	●	●	●	●
Centre volume		●	●	●	●	●	
Balance	●	●	●	●	●	●	●
Rear volume left			●	●	●		●
Rear volume right			●	●	●		●
3D effect		●					
Surround mode	●	●	●	●	●	●	●

The graphical representation of the speakers is displayed on screen when controls are being changed or when in test tone mode.
The drawing on screen is updated according to the chosen loudspeaker setup and the selected surround mode.
Speakers which are active are highlighted.
In 3D surround mode the graphical representation of the rear loudspeakers is replaced by the symbol)) ((.
The menu item **3D effect** appears and the level of the 3D effect can be adjusted.

Note: if extra front speakers are connected and selected in the Sound Setup menu, all internal TV speakers produce centre sound. See Connect Peripheral Equipment, Extra loudspeakers/Amplifier, p. 30.

Adjustment of the volume level of the loudspeakers


Surround settings
Test start
Test stop
Centre volume
Balance
Rear volume left
Rear volume right
3D effect
Surround mode

The menu item **Test** enables you to have a reference of the internal and the rear loudspeakers loudness.

① Select **Test start** and press the **OK** key.
A steady noise tone is switched sequentially through the available loudspeakers, for 2 seconds each. This enables you to have a reference of the loudness of each loudspeaker and to adjust the level of each until they all sound equally loud.
The loudspeakers activated light up in the screen graphic.

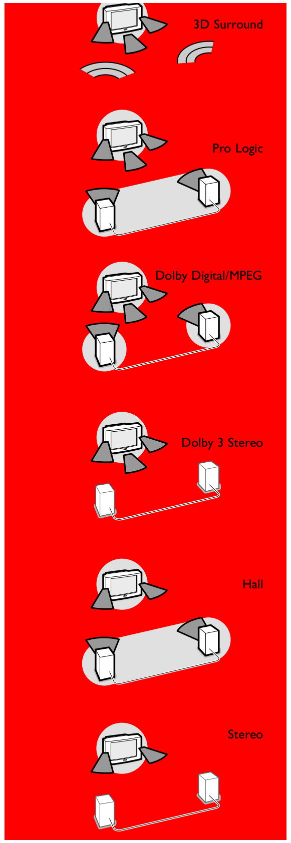
② Select **Centre volume**, **Balance**, **Rear volume left** or **right** and alter the selected adjustments.

③ Select **Test stop** and press the **OK** key when you have finished the adjustment of the speaker levels.

Headphone volume
See Connect Peripheral Equipment, p. 28 for the connection of the headphone.

Delta volume
Here you may adjust the volume differences of each selected TV channel or external device separately. This can compensate volume differences between different broadcasters.
Use the **- P +** keys to compare to the volume of other TV channels or externals.

Night mode *(only available with certain Dolby Digital sound sources)*
Select **Yes**, to reduce the dynamics of the sound and to improve listening at low volume.
This is useful for late-night listening, e.g. to a DVD disc.



Surround Modes
Select the Surround mode according to the sound mode being broadcast.

3D Surround (optimal with Dolby Surround broadcasting)
3D Surround enables you to experience the effect of Dolby Surround Pro Logic without the need of having rear speakers connected or activated.
With Dolby Digital or MPEG Multichannel an improved virtual effect is offered.
The graphical representation of the rear loudspeakers is replaced by the symbol)) ((.
Select the level of **3D effect** with the cursor left/right.

Pro Logic (with Dolby Surround broadcasting)
In addition to the left and right internal speakers, the centre and the rear surround loudspeakers reproduce the Dolby Surround Pro Logic sounds.
This sound is always present in the movie or programme marked with DD Dolby Surround.
This mode is especially recommended for such programmes or movies.
Dolby Pro Logic signals are also present on some DVD tracks.
Note: Normal stereo broadcast is not always encoded to produce a rear surround sound.

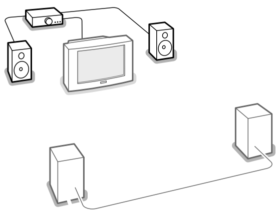
Dolby Digital* or MPEG Multichannel
When you have connected a DVD player or a Laser Disc player containing a Dolby Digital decoder (AC-3) or MPEG 2 decoder output (See Connecting Peripherals, Digital equipment, p. 29), you can enjoy Multichannel Surround Sound in your home when playing discs recorded in Dolby Digital or MPEG2.
In addition to the left and right internal speakers, the centre, the left and right rear surround loudspeakers and the subwoofer reproduce the Dolby Digital or Dolby MPEG 5-channel Surround sounds.
Select Dolby Digital or MPEG Multichannel Surround mode.

Dolby 3 Stereo (optimal with Dolby Surround broadcasting)
The sound signal is now distributed over the front left, the front right and the centre TV loudspeakers.
The rear loudspeakers do not produce any signal.

Hall
The special sound signal is distributed over the rear loudspeakers which creates a hall effect from the rear.
The centre loudspeaker does not reproduce any signal.
This mode is recommended when you wish to add surround sound to a broadcast which is not encoded Dolby Surround or to a mono signal.

Stereo
This mode reproduces only the left and right front sound signals.
You only hear a stereo sound if the broadcast which you are receiving is transmitted in stereo or nicam stereo.

* DD DOLBY DIGITAL Manufactured under license from Dolby Laboratories. 'Dolby' 'Pro Logic' and the double-D symbol DD are trademarks of Dolby Laboratories.
Confidential Unpublished Works. © 1992-1997 Dolby Laboratories, Inc.
All rights reserved.



With two extra front loudspeakers connected

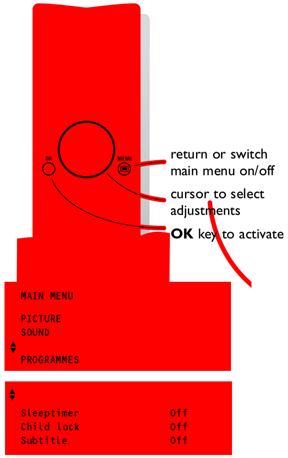
To enhance the sound reproduction of your TV you may connect two extra front loudspeakers via an external amplifier. See Connect Peripheral Equipment, Extra loudspeakers/Amplifier, p. 30
In the Surround modes, Hall and Stereo **(+ amp)** is added to indicate that you should switch on your amplifier as in these modes the internal TV speakers do not produce any sound.
The subwoofer output is muted.

Note: If extra front speakers are connected and selected, all internal TV speakers produce centre sound in the surround modes Pro Logic, Dolby 3 Stereo, Dolby Digital, and MPEG.

Press the ▣ key to return to the **SOUND** menu.

Dolby Digital sound reception info via the i+ key
Press the i+ key.
When Dolby Digital sound is reproduced, the sound info on screen displays the number of loudspeaker signals which are transmitted.
This is indicated by 2 numbers: the first one indicates the number of front loudspeaker signals, the second one the number of rear loudspeaker signals.
E.g. 'Dolby Digital 3/2' means that 3 front signals are transmitted: left, right and centre, and 2 rear signals: left and right surround.
'Dolby Digital 1/0' means that a mono signal is transmitted.
'Dolby Digital 2/0' means that the transmission contains a stereo signal which can be Dolby Pro Logic encoded.
In this case the surround mode will display Dolby Pro Logic.

Features menu



① Press the ▣ key to display/cancel the **MAIN MENU**.
② Use the cursor in the up/down directions to select the **FEATURES** menu.
③ Press the cursor right to activate the selected menu.
④ Use the cursor in the up/down directions to select a menu item.
⑤ Use the cursor in the left/right directions to select the desired setting.

Sleeptimer
With the sleeptimer you can set a time period after which the TV should switch itself to standby.
The counter runs from **Off** up to **180 min.**
One minute before the TV is set to go to standby, the remaining seconds appear on screen. Not visible in dual screen mode. You can always switch off your set earlier or change the set time.

Child lock
If the child lock is on, the TV can only be switched on with the remote control. The **P** - and + keys on top of the TV cannot be used to select a TV channel. In this way you can prevent unauthorised use of your TV.
If the message **Child lock On** appears, the child lock must be switched off before you can use the **P** - and + keys on top of the TV to select a TV channel.

Subtitle
TV channels with teletext often transmit certain programmes with subtitling. See Teletext, Continuous Subtitles, p. 26 how to select the proper subtitle page from the teletext index.
Select **Subtitle On** or **Off**.

Press the ▣ key to switch off the Features menu.

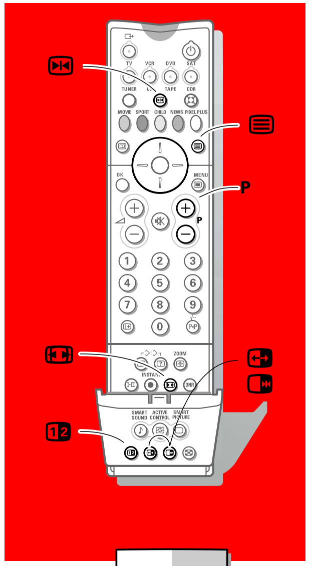
Programme list

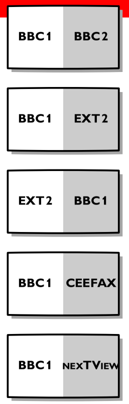
① Press the ▣ key to display/cancel the **MAIN MENU**.
② Select **PROGRAMMES** with the cursor up/down.
③ Press the cursor right to activate and to display an overview of all the TV channels installed.
④ Press the cursor up/down to run through the list and press **OK** to select the desired TV channel.

Press the ▣ key to switch off the Programme list.

Dual screen

Only for 32-36PW9767


⧓
☰
P
⇔
⇄
▣
1|2
TV VCR DVD SAT
TUNER CD TAPE CDR
MOVIE SPORT CHILD NEWS PIXELPLUS
OK MENU
P
1 2 3 4 5 6 7 8 9 0
ZOOM
INSTAN
SMART SOUND ACTIVE CONTROL SMART PICTURE


BBC1 BBC2
BBC1 EXT2
EXT2 BBC1
BBC1 CEEFAX
BBC1 NEXTVIEW

① Press the 1|2 key to switch on Dual screen.
The TV screen is divided into 2 parts:
- the left side for the picture of the selected TV channel;
- the right side for the picture from the TV channel in the favourite programme list following on the selected TV channel.

② Press the ⇔ key under the door of the remote control to select a vertical squeezed or a non vertical squeezed picture size.

Select left and right pictures

① Press **+ P -** to run through the TV channels in the left picture.

② Press the cursor up/down to select the TV channels in the right picture.
Also TV channels which are not in the favourite list may be selected.
Press the cursor left/right to select peripheral equipment connected to **EXT1**, **EXT2**, **EXT3**, **EXT4** or **FRONT**.
- *Selecting TV channels in the right picture with the cursor up/down is not possible when a menu is displayed on the screen.*
- *Programmes via a decoder/descrambler can not be reproduced in the right picture.*
- *The sound of the right picture can be heard via a headphone. Only programmes via a peripheral can be heard in stereo.*
- *Zooming is reset to 1x when Dual screen is switched on.*

Swapping screens

Press the ⇄ key to swap the right and left picture. The sound is swapped as well.

Select still picture

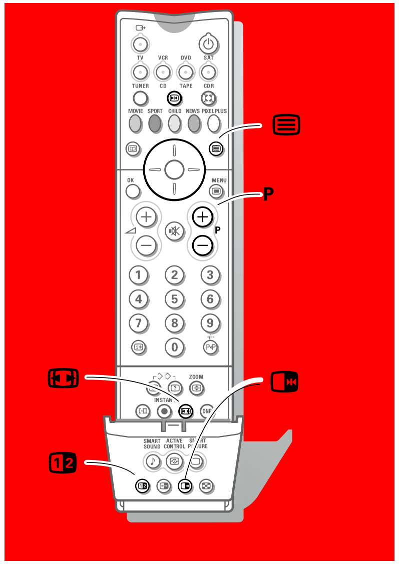
- Press the ⧓ key to freeze the left picture.
- Press the ▣ key to freeze the right picture.

Possible Dual screen combinations

- TV channel/TV channel: see Select left and right pictures.
- TV channel/Peripheral: see Select left and right pictures.
- Peripheral/TV channel
  - Select the connection (**EXT1**, **EXT2**, **EXT3**, **EXT4** or **FRONT**) of the connected peripheral.
  - Press the 1|2 key.
- TV channel/Teletext
  - Press the ☰ key to display teletext of the selected TV channel.
  - Press the 1|2 key.
    To operate teletext, see p. 25.
    The **+ P -** keys can only be used to run through the teletext pages.
  - Press the ☰ key again to return to a full screen picture or press the 1|2 key again to return to a full teletext picture.
- TV channel/NEXTVIEW
  - Press the ▤ key to display NEXTVIEW.
    Press the 1|2 key.
    To operate NEXTVIEW, see p. 20
  - Press the ▤ key again to return to a full screen picture or press the 1|2 key again to return to a full NEXTVIEW picture.

Dual screen

Only for 28-32PW9617


☰
P
⇔
▣
1|2
TV VCR DVD SAT
TUNER CD TAPE CDR
MOVIE SPORT CHILD NEWS PIXELPLUS
OK MENU
P
1 2 3 4 5 6 7 8 9 0
ZOOM
INSTAN
SMART SOUND ACTIVE CONTROL SMART PICTURE

① Press the 1|2 key to switch on Dual screen.
The TV screen is divided into 2 parts:
- the left side for the normal main picture,
- the right side for teletext broadcast by the selected TV channel or for NEXTVIEW.

To operate NEXTVIEW, see p. 20.
To operate teletext, see p. 25.

If Dual screen is **Off**, the picture, teletext or NEXTVIEW is displayed full screen.

② Press the ⇔ key under the door of the remote control to select a vertical squeezed or a non vertical squeezed picture size.

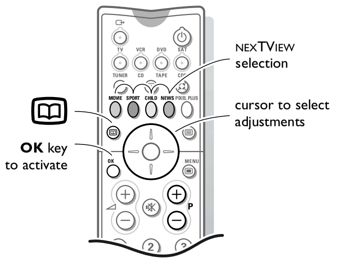
③ Press **+ P -**, digit keys or colour keys to run through the teletext pages.

④ Press the ☰ key to return to a full picture screen and to select another TV channel with the **+ P -** keys or with the digit keys.

Select still teletext picture

Press the ▣ key to freeze the teletext picture.
The info in this page is not being updated by the teletext broadcaster.

NEXTVIEW / Teletext guide



In the Setup menu, p. 8 you were asked to select a NEXTVIEW provider. If the selected provider supports NEXTVIEW then the TV will automatically present the NEXTVIEW programme schedule. If the TV channel supports just teletext, then the TV will switch automatically to Teletext guide.
Both facilities are offering the same functions: record, remind, info and watch. However in case of Teletext guide the broadcaster is responsible for the availability of these functions.

Some broadcasters provide information about their own programmes and sometimes other TV channels for one or more days. You can search for the programmes you want to watch up to 7 days in advance. It is also possible to search for a programme by theme, e.g. sport, movie, etc. Once a programme has been selected it can be tagged, to remind you, or to record on the video recorder automatically (provided the video recorder is equipped with NEXTVIEWLink), once, daily, weekly or series.
Teletext guide/NEXTVIEW also allows direct access to detailed information about programmes if provided by the broadcaster.

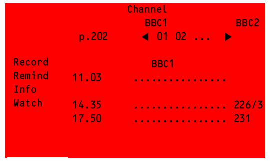
The broadcaster is responsible for the content of the information.
The TV is responsible for the capture of that information and for the presentation to the user.

Use of the Teletext guide/NEXTVIEW menus

❶ Press the 📖 key on the remote control to display/cancel the Teletext Guide/NEXTVIEW menu.

❷ Use the cursor in the up/down, left/right directions to select the date, **DAY** for the daily guide and the time block (in steps of 15 minutes), **CHANNEL** for the channel guide, **THEME** for the theme guide, **OVERVIEW** for an overview of all the programmes which are marked as reminders or for recording, the programme guide page number or to enter the programme list.

Teletext guide



```
                  Channel
                   BBC1            BBC2
         p.202   ◄ 01 02 ...  ►

Record              BBC1
Remind   11.03   ...............
Info
Watch    14.35   ............... 226/3
         17.50   ............... 231
```

❸ Enter the proper programme guide page number with the digit keys or with the **– P +** keys.

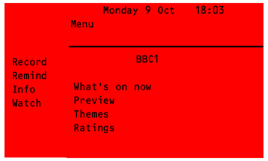
❹ Press the cursor left/right to run through the subpages.

❺ Select a programme with the cursor up/down.

❻ Press one of the colour keys to select one of the basic functions (if available); **record**, **remind**, **watch**, **info**. See Basic functions further on.

❼ Press the **OK** key to return to the header area again.

NEXTVIEW



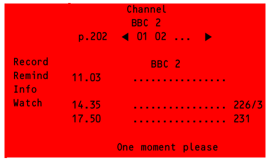
```
              Monday 9 Oct   18:03
         Menu

Record                BBC1
Remind
Info     What's on now
Watch    Preview
         Themes
         Ratings
```

❸ Select a programme with the cursor up/down.

❹ Press one of the colour keys to select one of the basic functions (if available); **record**, **remind**, **watch**, **info**. See Basic functions further on.

❺ Press the **OK** key to return to the header area again.

Teletext guide



```
                  Channel
                   BBC 2
         p.202   ◄ 01 02 ...  ►
Record              BBC 2
Remind   11.03   ...............
Info
Watch    14.35   ............... 226/3
         17.50   ............... 231

               One moment please
```

TV channels which broadcast teletext also transmit a page with the programme guide of the day. For each selected TV channel the programme guide page can be selected with the 📖 key:

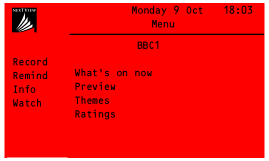
- automatically if the selected TV channel supports services like PDC (Programme Delivery Control) or MIP (Magazine Inventory Page).
- if automatic pre-selection is not possible then the index page is displayed and the proper programme guide page number of the selected TV channel has to be entered with the digit keys.

The programme guide page will be stored automatically only if it satisfies Video Programming via Teletext (VPT) requirements.

Every time you press the 📖 key, the programme guide page of the selected TV channel will be available if the TV channel does not support NEXTVIEW.

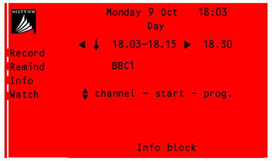
The function items record, remind, info and watch, corresponding with the coloured keys, become highlighted if the displayed programme page satisfies the Video Programming via Teletext (VPT) requirements. Select a programme item and press one of the function keys, e.g. Record or Remind. See Basic functions further on.
The Info item is enabled if the selected programme contains a page number with an optional subcode referring to a page with more info about the programme.

NEXTVIEW modes to sort and represent information



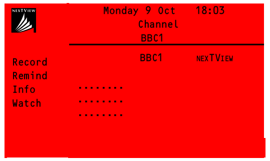
```
              Monday 9 Oct   18:03
                  Menu
                  BBC1
Record
Remind   What's on now
Info     Preview
Watch    Themes
         Ratings
```

Menu
If in the Setup menu, see p. 8, you have selected a TV channel as NEXTVIEW provider which also supports NEXTVIEW, NEXTVIEW menu is displayed or can be selected. The selected TV channel is responsible for this menu.
The NEXTVIEW menu appears when NEXTVIEW is switched on.
Use the cursor up/down to select a menu item.
Use the cursor right to select the menu item.
While going through the menus, the TV is collecting the sorting criteria to finally display a list of programme events.
The functions, in the left column, are shown at reduced brightness as long as the menu is displayed.
If **None** has been selected as NEXTVIEW provider in the Setup menu, the broadcaster's defined menu will not be available.



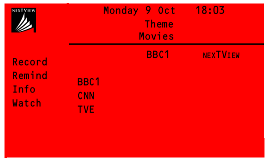
```
              Monday 9 Oct   18:03
                    Day
         ◄ ↓  18.03-18.15 ►   18.30
Record          BBC1
Remind
Info
Watch    ↕ channel - start - prog.


                 Info block
```

Day
The day guide provides an overview of all programme titles active in the selected time block. Time blocks are 15 minute intervals starting from the current time of the current day.
The default order is based on the programme list of the favourite TV channels as stored in the installation of the TV.
TV channels not marked as favourite TV channels will not appear.
Default NEXTVIEW opens with the day screen if the broadcast does not have its own menu.



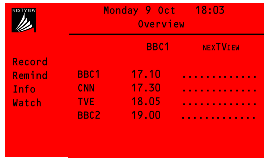
Monday 9 Oct 18:03
Channel
BBC1
BBC1 NEXTVIEW
Record
Remind
Info
Watch
....
....
....

Channel
The Channel guide provides an overview of all programmes that are broadcast by a single channel during one day.
Previous programmes can be made visible via cursor up.
The list will start with the earliest broadcast programme.
With cursor left/right another favourite TV channel can be selected.



Monday 9 Oct 18:03
Theme
Movies
BBC1 NEXTVIEW
Record
Remind
Info
Watch
BBC1
CNN
TVE

Theme
The theme guide displays a list of all programmes at the selected date, that matches with the selected category (news, sport, culture, movies, …).
The default starting item will be the current or next programme on the current TV channel.
The **THEME** selection is only present if programmes in the TV guide have defined themes.



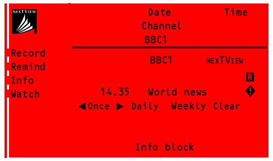
Monday 9 Oct 18:03
Overview
BBC1 NEXTVIEW
Record
Remind
Info
Watch
BBC1 17.10 ....
CNN 17.30 ....
TVE 18.05 ....
BBC2 19.00 ....

Overview
The Overview menu provides a list of programmes that are marked as reminders and those that have to be recorded.
When more than one programme to be recorded has an overlap in time, these programmes will be marked by a red colour.

After the programme has been broadcast, all items set for once will be deleted from the list the following day. This menu can be used to change a reminder or programmes to be recorded.

Note: the TV will automatically interpret the broadcast time (as shown on the teletext guide) of your selected programme into the correct local time and date.

Basic functions



Date Time
Channel
BBC1
BBC1 NEXTVIEW
Record
Remind
Info
Watch
14.35 World news
◀Once ▶ Daily Weekly Clear
Info block

The functions Record, Remind, Info and Watch can be activated with the corresponding colour keys on the remote control.
If the function is not available, then the text is shown at reduced brightness.
Select a programme with the cursor up/down.

Record R or Remind ◆

① Press the red colour key to activate **Record** or the green colour key to activate **Remind.**
If the programme number of the broadcaster is not yet known, a message appears with the request to input the correct programme number with the cursor left/right and press OK.
A small menu pops up in which you can choose the interval: once, daily or weekly, or clear an earlier made record or remind setting. The default interval is set to **Once**. If a programme is an episode of a series, it is identified by the system and the options **daily** and **weekly** are replaced by the option **series**. In this case the system identifies when the next episode of the series will be broadcast. This is not possible in the Teletext guide.

② Use the cursor in the left/right directions to select the interval.
The colour of the tag refers to the interval.

③ Press the **OK** key.

When **Record** R is activated:
Storing appears to indicate the video recorder is programmed.
When **Remind** ◆ is activated:
- a message will appear on the screen the moment the tagged programme with ◆ starts, when watching the TV later on.
- the TV switches on the moment the tagged programme with ◆ starts, when the TV is in standby.

Note: Recordings and reminders are not possible when the broadcaster does not transmit dates and times of the programmes.
*The message **No TV programming possible** appears. Make sure you are on the TV programming page.*

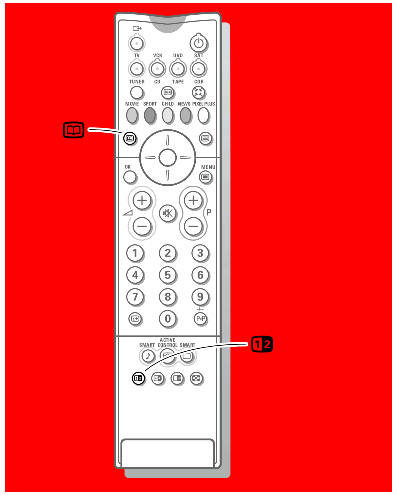
Info

① Press the yellow colour key to activate **Info**.
Advertisements or information relating to the selected programme are displayed. In some cases all of the information does not fit on the screen. Use the cursor up/down to browse through all of the information.

② Press the yellow colour key again to switch off the information.

Watch
Press the blue colour key to activate **Watch**.
This function is only available if a currently broadcast programme is selected. Otherwise the function is not available.
The selection causes the TV to tune to the selected TV channel. NEXTVIEW is switched off.

Select Picture/NEXTVIEW-Teletext Guide



Press the 🕮 key.
Press the 1|2 key.
The screen is divided into two parts: the left side for the normal main picture, the right side for NEXTVIEW/Teletext Guide.
Press the 1|2 key to return to a full NEXTVIEW/Teletext guide screen and press the 🕮 key to return to a full picture screen.

Acquisition and updating of NEXTVIEW info

Acquisition and updating of NEXTVIEW is done when you are watching the TV channel of the selected NEXTVIEW provider, see Setup menu p. 8, or when the TV is switched to standby.
The indicator on the front of the TV remains orange during standby.
After all needed acquisition or updating is complete, it turns red.
Acquisition of fresh data will happen once during the night.

Note: it may be necessary to put the TV in standby mode when all NEXTVIEW information is outdated, e.g. returning from holiday.

Video recorder restrictions with NEXTVIEW

The **Record** item and the automatic recording will only be present and possible if your video recorder is equipped with NEXTVIEWLink.
Your video recorder should be connected to **EXTERNAL 2**. See Connect Peripheral Equipment, p. 27.

The daily, weekly and series options, the number of recordings set and the way overlapping recordings are managed, depend on the type of video recorder you have. When all video recorder timers are full, **No free record timer** appears on the screen.

Upload video recorder overview.
When the TV is switched on, the timer recordings are uploaded to the TV to check if any manual addition or deletions have been done. This is shown in the overview. The video recorder manages and removes timer recordings when performed.

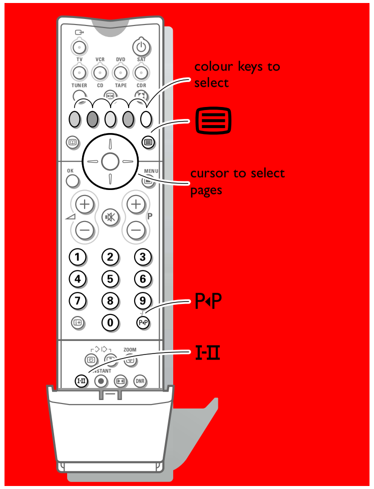
Some NEXTVIEWLink video recorders do not allow a daily programming of the recording to start on a Saturday or Sunday. In this case the item **daily** will be removed from the menu on those days.

Most TV channels broadcast information via teletext.
Each channel which broadcasts teletext transmits a page with information on how to use its teletext system. Look for the teletext page with the main index (usually p. 100). Depending on the TV channel, teletext is transmitted in different systems.
The colours used in the options line correspond with the colour keys of your remote control.

About Easy Text

Easy Text considerably reduces the waiting time (on condition that the teletext broadcast of the particular TV channel is received for at least half a minute) by :
- a direct selection of previous and following pages which are in transmission and of the pages referred to in the options line
- a habit watcher list: frequently used pages are put automatically in a list of preferred pages, so that they are immediately available
- the precapturing of the page numbers referred to in the displayed page
- the precapturing of all the subpages.

Switch Teletext on and off



Press ▤ to switch the teletext on or off.
The main index page appears on the screen together with two information lines at the top and one option line at the bottom of the screen.

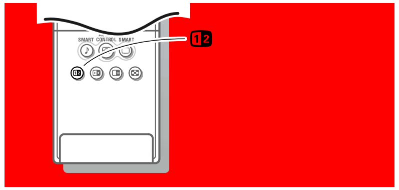
Remark: if the displayed teletext characters on screen do not correspond with the characters used in your language, press the I-II key, under the door of the remote control, repeatedly to select language group 1 or 2.

Select a Teletext page

With the digit keys
Enter the desired page number with the digit keys.
The page counter seeks the page or the page appears immediately when the page number has been stored in the memory.
A message appears when you have entered a non existent or incorrect page number. Page numbers beginning with 0 or 9 do not exist. Choose another number.

With the option line
Select with the colour keys, corresponding to the coloured options at the bottom of the screen, the desired subject.

Select Picture/Teletext



Select a TV channel which broadcasts teletext.
Press the ▤ key.
Press the 1|2 key.
The screen is divided into two parts:
the left side for the normal main picture,
the right side for teletext broadcast by the selected TV channel.
Press the ▤ key to return to a full screen picture or press the 1|2 key to return to a full teletext picture.

Quickly run through the teletext pages

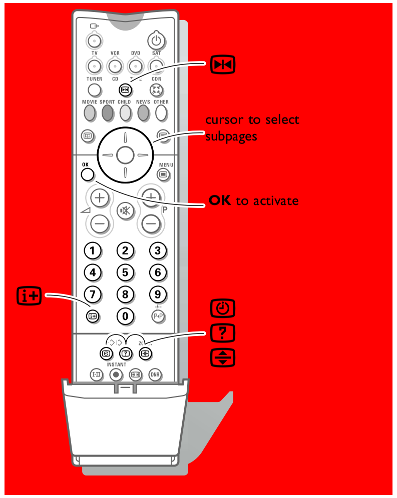
Press the cursor up/down or the **- P +** keys to run through the previous or the following pages.

Select the previously selected txt page

Press the P◂P key.

Select the index teletext page

Press the grey colour key to display the main index (usually p.100).



Only for T.O.P teletext broadcasts :
T.O.P orders the pages in categories and adds other possibilities of enhancing ease of use.
Press i+. A T.O.P. overview of the teletext subjects available is displayed.
Not all TV channels broadcast T.O.P. teletext. When the teletext system
is not T.O.P. teletext, a message appears at the top of the screen.
Select with the cursor up/down, left/right the desired subject and press the **OK** key.

Select subpages

When a selected teletext page consists of different subpages, one of the subpages appears on the screen.
The coloured number in the first information line refers to the displayed subpage.
The other subpages can be selected in 2 ways :

With the cursor left/right
The other subpage numbers appear in white as soon as the transmission has found them. They are stored in the memory so that they are available while the teletext page is on screen.
Select with the cursor left/right the previous or the following subpage.

With the ⊡ key
- Enter the subpage number yourself:

Press ⊡. Enter the desired subpage with the digit keys : e.g. 3 for the third page of seven subpages.
The TV searches for the selected subpage.

- Automatically rotating subpages:

Press ⊡ again to cancel the entered digit key for the subpage.
Now the subpages rotate automatically.

Press ⊡ again to select the subpages with the cursor left/right again.

Special teletext functions

Hold
Press ⧓ to stop the automatically rotating of the subpages or to stop the page counter from seeking when you have entered a wrong page number or when the page is not available.
Enter another page number.

Enlarge
Press ⬍ repeatedly to display the upper part, the lower part and then to return to the normal page size. When the upper part is displayed, you can scroll the text, line by line using the cursor up/down.

Reveal
Press ? to reveal/conceal the hidden information, such as solutions to riddles and puzzles.

Select Continuous Subtitles

TV channels with teletext often transmit programmes with subtitling. For each TV channel you can store a subtitle page which will be displayed continuously if the programme being broadcast is transmitted with subtitles.

Switch on teletext and select the proper subtitle page from the index.
Switch off teletext.
Now the subtitle page is stored for the selected TV channel.

Once subtitles have been stored and **Subtitle On** has been selected they will automatically be displayed on the selected TV channel if subtitles are in the transmission.
Select **Subtitle On** or **Off** in the Features menu, see p. 17.
The subtitle symbol ▭ appears when **Subtitle On** is selected.

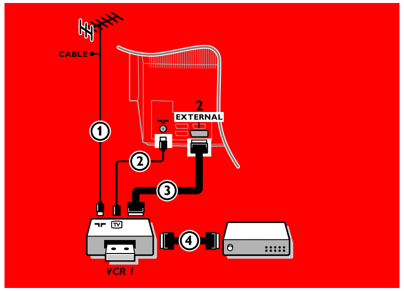
Remark: you are in teletext mode, so only teletext functions are available.

Connect Peripheral Equipment

There is a wide range of audio and video equipment that can be connected to your TV.
The following connection diagrams show you how to connect them.

Video recorder

Connect the aerial cables ①, ② and, to obtain the optimum picture quality, eurocable ③ as shown below.



If your video recorder is provided with the EasyLink function, the eurocable supplied with it should be connected to ***EXTERNAL 2*** *to benefit from the EasyLink functionality.*

If the eurocable ③ is not used the following steps are required:

Search for and store the test signal of the video recorder

❶ Unplug the aerial cable ① from the aerial socket ┬ of your video recorder.

❷ Switch on your TV and put the video recorder on the test signal. (See the handbook for your video recorder.)

❸ Search for the test signal of your video recorder in the same way as you searched for and stored the TV signals. See Installation, Searching for and storing TV channels, Manual Installation, p. 6.

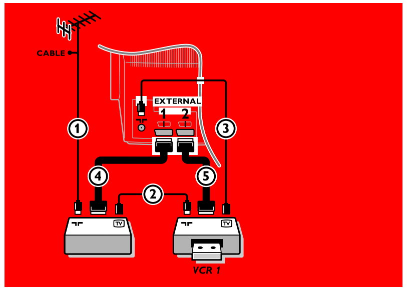
❹ Store the test signal under programme number 0 or between 90 and 99.

❺ Replace the aerial cable in the aerial socket ┬ of your video recorder after you have stored the test signal.

Decoder and video recorder
Connect a eurocable ④ to your decoder and to the special euroconnector of your video recorder. See also the video recorder handbook.
See Define Decoder/Descrambler prog. numbers, p. 8.
You can also connect your decoder directly to **EXTERNAL 1** or **2** with a eurocable.

Video recorder and other equipment

(except Digital Sources)



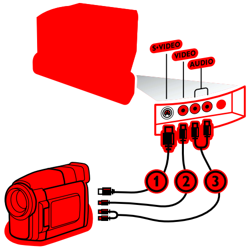
❶ Connect the aerial cables ①, ② and ③ as shown. Better picture quality can be obtained if you also connect eurocable ⑤ to **EXTERNAL 2** and a eurocable ④ to **EXTERNAL 1, 3** or **4**.

❷ Look for the test signal of your peripheral in the same way as you do for a video recorder.

When a video recorder is connected to EXTERNAL 1 you can only record a programme from your TV.
Only when a video recorder is connected to EXTERNAL 2 it is possible to record a programme from your TV as well as from other connected equipment. See Record with your video recorder, p. 33.

Note: EXTERNAL 1 can handle CVBS and RGB, EXTERNAL 2 CVBS, Y/C and RGB, EXTERNAL 3 and 4 only CVBS.
It is preferred to connect peripherals with RGB output to EXTERNAL 1 or 2 as RGB provides a better picture quality.

Camera & camcorder

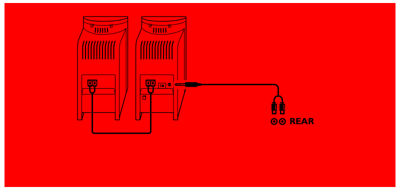


1. Connect your camera or camcorder to sockets at the right side of your TV.
2. Connect the equipment to **VIDEO** ② and **AUDIO L** ③ for mono equipment.
   Press the I-II key repeatedly to select the sound coming from one or both loudspeakers of your TV.
3. For stereo equipment also connect **AUDIO R** ③.

S-VHS quality with an S-VHS camcorder is obtained by connecting the S-VHS cables with the **S-VIDEO** input ① and **AUDIO** inputs ③.

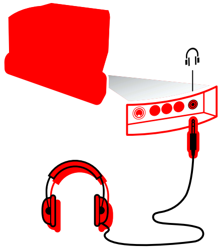
Warning: Do not connect cable ① and ② at the same time. This may cause picture distortion !

Wired rear loudspeakers



When no wireless RF surround sound is possible or when there is too much interference you can still enjoy Dolby Pro Logic and Dolby Digital surround sound by connecting the two rear loudspeakers to the TV with a stereo cinch to stereo 3,5 mm jack cable.
Connect the (not supplied) cable with the **PRE-AMP IN (TV)** connector at the back of the active surround loudspeaker and with the black and red **REAR R** or **L** outputs at the back of the TV.

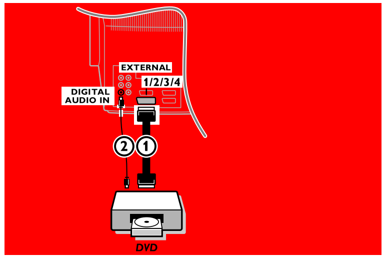
Headphone



1. Insert the plug into the headphone socket 🎧 at the right side of the TV.
2. Press 🔇 on the remote control to switch off the internal loudspeakers of the TV.
   The headphone impedance must be between 8 and 4000 Ohm. The headphone socket has a 3.5 mm jack.

In the **SOUND** menu select **Headphone volume** to adjust the headphone volume.

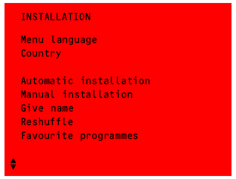
Digital equipment (DVD, digital Set Top Box,...)



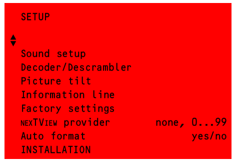
Connect your digital equipment with a eurocable ① to one of the euroconnectors (**EXT1**, **EXT2**, **EXT3** or **EXT4**), or with a cinch cable to the **VIDEO** input at the right side of the TV (see illustration above).

For digital sources with a Dolby Digital (AC-3)/MPEG2 audio output also connect an audio cable ② to the **DIGITAL AUDIO IN** socket of your TV to enjoy MultiChannel surround sound. This is only valid when you have connected your digital equipment to **EXT1**.

1. Press ◷ and ? at the same time.



```
INSTALLATION

Menu language
Country

Automatic installation
Manual installation
Give name
Reshuffle
Favourite programmes

⇕
```



```
SETUP

⇕
Sound setup
Decoder/Descrambler
Picture tilt
Information line
Factory settings
NEXTVIEW provider        none, 0...99
Auto format                    yes/no
INSTALLATION
```

2. Select **Digital sources** in the Setup menu of the **INSTALLATION** menu and select:
   - **None** if you have no digital source connected,
   - **EXT1**, **EXT2**, **EXT3** or **EXT4** if you have connected your equipment to a euroconnector,
   - **EXT1 + Dig. Audio** if you have connected your digital equipment with a Dolby Digital/MPEG2 audio output to **EXT1** and to the **DIGITAL AUDIO IN** socket,
   - **EXT1**, **2**, **3** or **4** + **Dig. STB** if you have connected your Digital Set Top Box to one of the euroconnectors,
   - **FRONT** in case you connected your equipment to the right side of the TV,
3. Press the ▣ key to switch off all menus.

*Note: When you have connected a digital source + Digital audio to **EXT1** and a digital STB to one of the other externals*

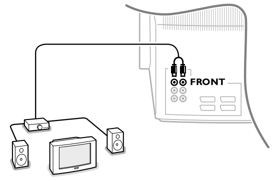
1. *Always select **EXT1 + Dig. Audio** in the Digital sources menu.*
2. *When you want to watch digital broadcasts via your Set Top Box, use the ⇥ key on the remote control, to select the external where the STB has been connected.*
   *In case of poor digital transmission, select the with the **Multimedia** setting using the Smart Picture ▢ key, without changing the picture settings manually.*

Other equipment

Other equipment can be connected to one of the remaining euroconnectors.

Connect Extra loudspeakers / Amplifier

Stereo amplifier and two extra FRONT speakers
To enhance the sound reproduction of your TV you can connect two extra speakers via an external amplifier.



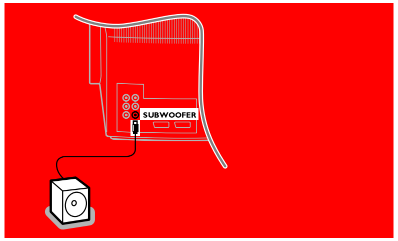
1. Connect the audio cables to the audio input of your amplifier and to **AUDIO FRONT L** and **R** at the back of your TV. The output level is controlled by the volume control of your TV.
   Note: Switch off the TV and your audio amplifier before connecting them. Set the audio amplifier's volume to minimum.
2. Select **Extra front speakers Yes (Amp)** in the Sound Setup menu. See p. 9.
   See Surround settings, p. 15 for the available Surround modes.
3. Adjust the volume of the audio amplifier.
   You may make use of the Test tone function in the Surround Settings menu, see p. 14, to have a reference of the loudness of the separate loudspeakers.
   Note: Once you have adjusted the volume of the amplifier, do not change it while watching TV as the whole configuration operates with the volume adjustment of your TV.

Dolby Pro Logic Surround amplifier
Although your TV is already equipped with a Digital Multichannel decoder you might want to connect your own Dolby Surround amplifier.

1. Connect the Dolby Pro Logic Surround amplifier to the **AUDIO FRONT L** and **R** at the back of your TV.
2. Select **Extra front speakers No** in the Sound Setup menu. See p. 9.
   The audio output is now independent of volume, treble, bass and surround settings.
3. Switch off the volume of the TV with the mute key 🔇.
   All volume settings, tone control and speaker connections have to be done via the external Dolby Pro Logic amplifier.

Attention: the sound info on screen will not correspond with the actual sound reproduction. You will not be able to reproduce multichannel Dolby Digital or wireless surround sound through the AUDIO L and R output of your TV.

Connect extra subwoofer



To enhance the sound reproduction of your TV you can connect an externally powered subwoofer.
Connect the audio cable to the **SUBWOOFER OUT** socket of your TV and to the **SUBWOOFER IN** socket of the subwoofer.
The volume of the subwoofer is controlled by the TV. The subwoofer output is muted when the **Extra front speakers** menu item in the Sound Setup menu, p. 9, is switched to **Yes**.
For details, please refer to the subwoofer's manual.

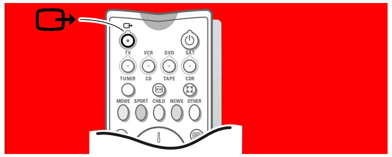
If you want to connect more equipment to your TV, consult your dealer.

To select connected equipment

If the TV is connected to a video recorder with the EasyLink function, in some cases the TV will be switched on, even when it was in standby. (E.g. playback tape,...)
This is not possible when Child Lock On is selected.

Equipment connected with an aerial cable only :
Select the programme number under which you have stored the test signal with the digit keys.

Equipment connected to a euroconnector or to the right side of the TV

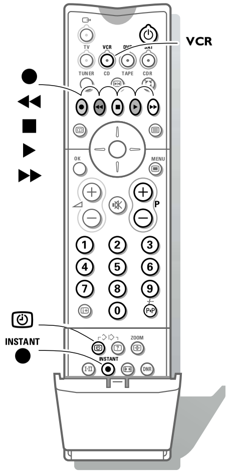


Press the ⇥ key repeatedly to select **EXT1**, **EXT2**, **EXT3**, **EXT4** or **FRONT**, according to where you connected your equipment at the back or the right side of your TV.
Remark : Most equipment (decoder, video recorder, satellite receiver) carries out the switching itself.

If you want to change to TV channels?
Enter the programme number of the TV channel which you want to watch with the digit keys or press the **TV** key.

Audio- and video equipment keys

Most of the audio and video equipment from our range of products can be operated with the remote control of your TV.



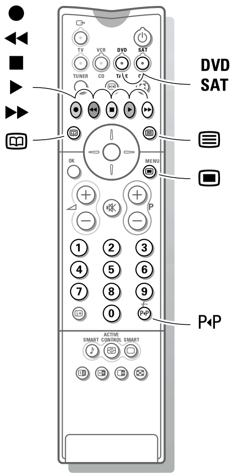
Press the **VCR**, **DVD**, **SAT**, **TUNER**, **CD**, **TAPE** or **CDR** key according to the equipment you want to operate with this remote control. See Use of the remote control, p. 10.

Video recorder
Press one of the video recorder keys after you pressed the **VCR** key:

●	for record,
◀◀	for rewind,
■	for stop,
▶	for play,
▶▶	for fast forward,
-/--	for selecting 1- or 2-digit programme numbers from the videorecorder,
- P +	for sequential programme selection from the video recorder tuner,
0 to 9	to select a programme number from your video recorder tuner,
⏻	to switch the video recorder to standby
⏲	VCR timer

These keys function with equipment which use the RC5 signalling standard.

If your video recorder has the EasyLink function, the key **INSTANT** ● *for recording, under the door of the remote control, can be operated in the TV mode.*
If your EasyLink video recorder has the system standby function, when you press the ⏻ *key for 3 seconds, both TV and the video recorder are switched to standby.*



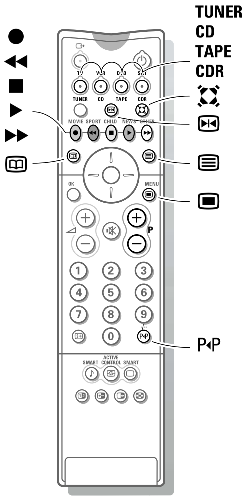
DVD keys
Press one of the following keys after you have pressed the **DVD** key.

▣	to switch the DVD menu on or off
P◂P	to select a DVD chapter
≣	to select a DVD title
⊞	to select your choice of subtitle language
●	pause
◀◀	to search down
■	stop
▶	play
▶▶	to search forward
0-9	to select a programme number from your DVD
OK	to enter the selected menu item

These keys function with equipment which use the RC6 signalling standard and with Philips DVD players.

Satellite receiver keys
Press one of the TV keys after you have pressed the **SAT** key.

These keys function with equipment which use the RC5 signalling standard.



Tuner, CD, Tape and CDR keys
Press one of the following keys after you have pressed the **TUNER, CD,**
TAPE or **CDR** key.

▣	to switch the menu on or off (tuner)
P◂P	to select a frequency (tuner)
●	to record
◀◀	to search down (tuner); rewind (CD/tape); speed down (CDR)
■	stop
▶	play
▶▶	to search up (tuner); forward (CD/tape); speed up (CDR)
≣	RDS display (tuner); info on screen (CD/CDR)
⊞	RDS news/TA (tuner); disc increment (CD/CDR)
⧓	pause (CD/CDR/tape)
⛶	surround modes (CD/CDR/tape)
+ P -	next/previous (CD)

Record with your video recorder without EasyLink

To record S-VHS quality, connect an S-VHS peripheral directly to the video recorder.

Record a TV programme

① Select the programme number on your video recorder.
② Set your video recorder to record.
See the handbook for your video recorder.

Switching programme numbers on your TV does not disturb recording !

Record a programme on your video recorder connected to EXTERNAL 2 from Audio/Video equipment connected to EXTERNAL 1, EXTERNAL 3, EXTERNAL 4 or to sockets on the right side of the TV

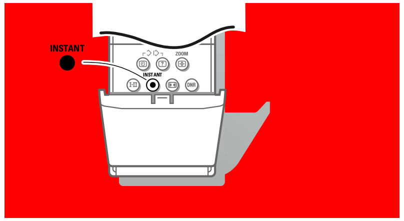
① Switch on the equipment.
② Select the right external on your video recorder.
③ Set your video recorder to record.
You record what you are watching on the screen.

Do not switch programme numbers or do not switch off your TV when you are recording !

Record with your video recorder with EasyLink

If you have connected an S-VHS video recorder provided with the EasyLink function, you can record S-VHS quality from an S-VHS peripheral connected to the right side of the TV. (E.g. from an S-VHS camcorder.)

In TV mode, it is possible to start a direct recording of the programme which is being displayed on the TV screen.
Press the **INSTANT** ● *record key, under the door of the remote control.*



The video recorder switches on from standby and a message of what is being recorded appears on the screen.
The video recorder starts recording the programme you are watching.
Switching programme numbers on your TV does not disturb recording !

When recording a programme from a peripheral connected to EXTERNAL 1, 3, 4 or FRONT, you can not select another TV programme on the screen.
To watch TV programmes again, press the programme number you want to select twice.
Attention: the recording is stopped and your video recorder switches to standby.

If you switch to standby during recording of a programme from a peripheral connected to EXTERNAL 1, 3, 4 or FRONT, the blinking lamp on the front of your TV indicates that you are still recording. The blinking stops after the recording is finished.

Record with your video recorder with NEXTVIEWLink

If your video recorder is equipped with NEXTVIEWLink, and you tagged one or more programmes to be recorded automatically in the NEXTVIEW mode, it is not necessary for the TV to be in the standby mode or switched on for the recording to start.

Tips

Care of the screen
Clean the TV with a slightly damp soft cloth. Do not use abrasive solvent as it can damage the TV screen.

Mobile telephone warning !
To avoid disturbances in picture and sound, malfunctioning of your TV or even damage to the TV, keep away your mobile telephone from the TV.

Poor Picture
- Have you selected the correct TV system?
- Is your TV or house aerial located too close to loudspeakers, non-earthed audio equipment or neon lights, etc.?
- Mountains or high buildings can cause double pictures or ghost images. Sometimes you can improve the picture quality by changing the direction of the aerial.
- Is the picture or teletext unrecognisable? Check if you have entered the correct frequency. See Installation, p. 6.
- Are brightness, sharpness and contrast out of adjustment? Select Factory settings in the Setup menu, p. 8.
- Sometimes poor picture quality is possible when having activated an S-VHS camera or camcorder connected to the right side of your TV and another peripheral is connected to **EXT1**, **EXT2**, **EXT3** or **EXT4** at the same time. In this case switch off one of the other peripherals.

No picture
- Is the aerial connected properly?
- Are the plugs tightly connected in the aerial socket?
- Is the aerial cable in good condition and does it have suitable plugs?
- Are the connection facilities to a possible second TV in good condition? If in doubt, consult your dealer.

No sound
- No sound on any channel? Check the volume isn't at minimum.
- Is the sound interrupted with the mute key 🔇? Check if your speaker configuration corresponds with the selections made in the Sound Setup menu, p. 9. E.g. is your amplifier switched on when you have 2 extra front speakers connected?
- No sound from the rear speakers or the centre speakers? Select an appropriate surround mode, according to the broadcasted sound signal or adjust the volume or check if the wireless transmitter is properly connected. See Surround Modes, p. 15.
- In case you connected digital equipment with a digital audio connection you have to select **EXT1 + dig. audio** in the Sound Setup, Digital sources, p. 29 to reproduce sound.

Remote control
- If your TV no longer responds to the remote control, the batteries may be dead or the wrong mode (TV or other peripheral, see p. 3) is selected.
- You can still use the **M** key and the -/+ keys at the top of your TV.

Menu
Have you selected the wrong menu? Press the same key again to exit from the menu.

NEXTVIEW - No information
See Acquisition and updating of NEXTVIEW information, p. 24.

NEXTVIEW - Displayed time is wrong
The broadcaster on programme number one does not transmit the correct local date en time. Use **Reshuffle** in the **INSTALLATION** menu to place another broadcaster on programme number one.

Wireless Surround speaker system
- Are the active surround speaker and the Surround Sound setting in the Setup menu switched to the same transmitting channel?
- External RF equipment, mobile telephones or people moving around close to the TV may disturb the sound transmission.
- When no RF surround sound is possible, or when there is too much interference, try to switch to another wireless channel or use the wired back up solution. See Install Sound Setup, p. 9.
- When you switch to another wireless channel, take care to select the same transmitting channel as well in the setup menu as on the speaker box.
- For wireless transmitter modules with a built in antenna: direct the antenna to achieve the best reception.

No solution
Switch your TV off and then on again once.
Never attempt to repair a defective TV yourself.
Check with your dealer or call a TV technician.

End of life directives
Philips is paying a lot of attention to producing environmentally-friendly in green focal areas. Your new TV contains materials which can be recycled and reused. At the end of its life specialised companies can dismantle the discarded TV to concentrate the reusable materials and to minimise the amount of materials to be disposed of.
Please ensure you dispose of your old TV according to local regulations.

How to dispose of dead batteries?
The batteries supplied do not contain the heavy metals mercury and cadmium. Nevertheless in many countries dead batteries may not be disposed of with your household waste. Please ensure you dispose of dead batteries according to local regulations.

Index

a ACI, 6
active control, 11
auto format, 8
automatic installation, 6
auto surround, 9
b bass, 14
bilingual broadcast, 12
c camcorder, 28
centre volume, 14
child lock, 17
colour enhancement, 13
continuous subtitles, 26
country, 5
d decoder/descrambler, 8
delta volume, 14
digital options, 13
digital sources, 29
DNR, 12
dolby 3 stereo, 15
dolby digital, 15
dolby surround settings, 14
double lines, 13
dual screen, 18-19
DVD keys, 32
dynamic contrast, 13
e easy text, 25
eurocable, 27
extra front speakers, 9
f factory settings, 8
favourite programmes, 7
fine tune, 6
freeze, 10
frequency, 6
g give name, 7
h hall, 15
headphone, 28
hue, 13
i info on screen, 10
information line, 8
instant recording, 12
interrupt the sound, 10
l language, 5
m manual installation, 6
menu language, 5
multipip, 11
n NEXTVIEW, 20
NEXTVIEW provider, 8
nicam, 12
night mode, 14
p picture adjustments, 13
picture format, 12
picture tilt, 8
programme list, 17
Pro Logic, 15
r recording, 33
reshuffle, 7
s satellite receiver keys, 32
search for TV channels, 6
setup, 8
sleeptimer, 17
smart picture & sound, 11
sound adjustments, 14
sound setup, 9
stereo, 12
store TV channels, 5
strobe, 11
subwoofer, 30
surround mode, 15
S-VHS, 32
switch TV on, 4
t teletext, 25
treble, 14
v video recorder, 27
volume, 10
w wireless surround, 9
z zoom, 12
3D effect, 14
3D surround, 15

Glossary

100 Hz Digital Scan
If you look at a television screen you will see small imperfections in the picture caused by line vibration. Digital Scan (an internal process) removes interline flicker. When combined with 100 Hz, you will see a totally stable image.

Automatic Channel Installation (ACI)
Automatically installs all TV channels in the same order as offered by your cable company, provided of course that the data is transmitted. It also automatically includes programme number and programme name. With ACI, channel installation is fully automatic, simple and fast.

Child Lock
Feature to prevent unauthorised use of your TV.

Digital Natural Motion
100 Hz Digital Natural Motion eliminates the juddering effect that is noticeable when there are moving objects in the picture. This results in razor sharp pictures and ensures smooth movements.

DNR
Digital Noise Reduction.
By encoding signals digitally in 100 Hz sets, it is possible to clean up picture noise. This is especially beneficial in poor signal areas and when viewing poor quality video tapes.

Dolby Digital
The audience is completely surrounded by the sound. Both the left/right/centre and subwoofer speakers and the surround speakers are driven by the digitally processed sound system of the TV.
The Dolby Digital sound contains 6 independent digital channels which results in a CD sound performance from both the front and rear sound channels.

Dolby Surround Pro Logic
Literally wraps you in 4-channel sound. it brings your favourite movies to life with all the realism and impact of cinema sound as though you are part of the action.

Easy Link
Digital 'intelligent' ESI bus-system between TV and VCR (Scart connection required). Turns source selection and control into a one-button operation.

Easy Text
Teletext memory that automatically memorises Teletext pages and gives you instant access to them.

Euroconnector
A 21-pin connector system enabling you to simply connect various types of audio/video and computer equipment.

Menu
On-screen display of functions and facilities in a well-organised survey, which you can select using your remote control.

NEXTVIEW
NEXTVIEW is a new feature to assist the TV and VCR user in selecting the programmes she or he likes to watch from a television programme guide on the screen.
It enables the user to see a description of every programme, and mark interesting programmes to be reminded (auto TV on) or recorded (NEXTVIEWLink video recorder required).

NTSC
The broadcasting system used in the USA, Japan and parts of South America and Southeast-Asia.

Smart Picture and Sound Controls
Keys on the remote control to select predefined picture and sound settings.

Sleeptimer
Function with which you can set a time period after which the TV should switch itself to standby.

Picture Freeze
TV mode which allows you to "freeze" a certain image in order to study a specific detail at ease, e.g. to make notes of certain programme information like phone numbers.

Teletext
See also Easy Text
WST: World Standard Teletext.
FLOF: Full Level one Features. System applied by the BBC, RVE.... that provides a fast access to the teletext pages.
TOP: Table of (Teletext) Pages. German system for an easy access to the teletext pages.

Tint
TV-function to modify the general colour balance between cool and warm and to adjust it according to your personal preference.

4. Mechanical Instructions

Index of this chapter:

1. Set Disassembly
2. Service Positions
3. Board Removal
4. Set Reassembly

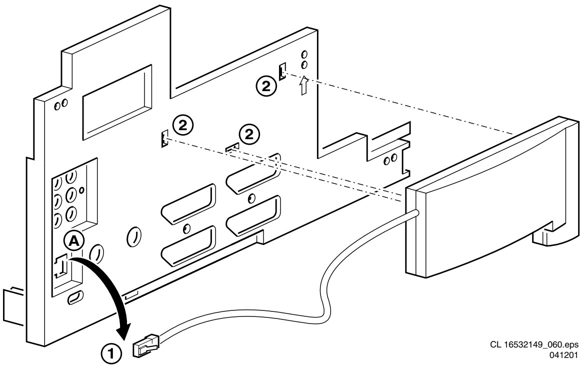
Note: Figures below can deviate slightly from the actual situation, due to different set executions.

4.1 Set Disassembly

Follow the disassemble instructions in described order.

4.1.1 Wireless Surround Transmitter Removal (if attached)

Transmitter module



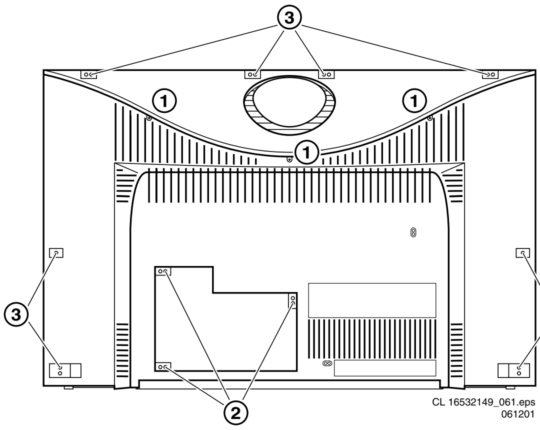
CL 16532149_060.eps
041201

Figure 4-1

1. Remove the cable [1] of the Wireless Surround Transmitter box (at the left side of this RJ45 plug you can find the release-hook of the lock-mechanism).
2. Pull the Wireless Surround Transmitter box backwards. It is clicked to the rear cover via three clamps [2].

4.1.2 Rear Cover Removal

Rear view



CL 16532149_061.eps
061201

Figure 4-2

Warning: disconnect the mains power cord before you remove the rear cover.

First, remove the top cover (= plate with 'saucer'):

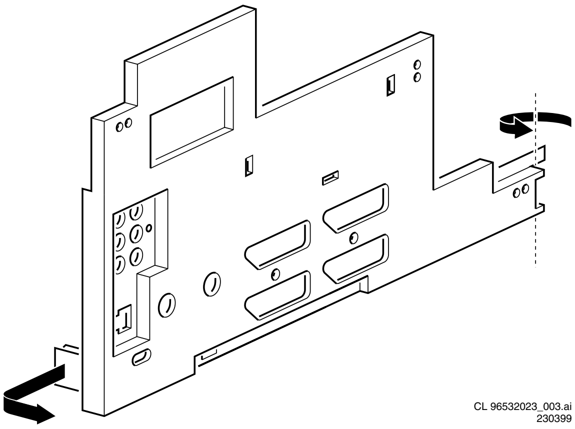
1. Remove the three fixation screws [1] that hold the cover plate.
2. Pull the cover (horizontally) backwards.

To be able to access the electronics of the set, you must remove the rear cover:

1. Remove the three remaining fixation screws [2] of the I/O-cover plate.
2. Remove the remaining fixation screws [3] at the two sides and the top of the rear cover.
3. Now remove the rear cover. Make sure that wires and cables are not damaged during cover removal.

4.1.3 I/O Cover Plate Removal

Cover plate



CL 96532023_003.ai
230399

Figure 4-3

It is rather easy to remove the I/O-cover plate:

1. Release the hook on the left side (pull slightly outwards).
2. Now remove the plate (it hinges at the right side).

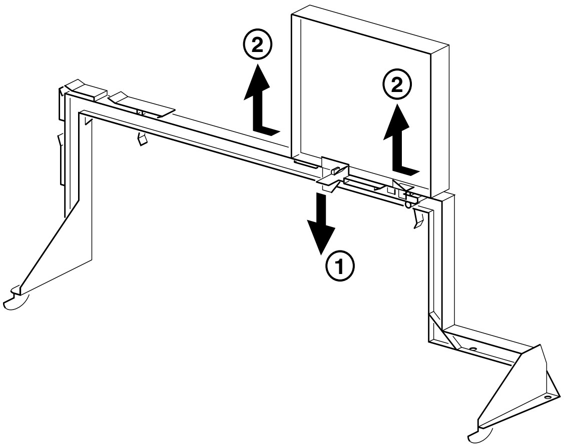
4.1.4 Sub-woofer Removal

How to remove the sub-woofer:

1. Disconnect the loudspeaker cable at the top of the sub-woofer box.
2. The subwoofer has two rubber feet at the bottom. Behind them, there is a snap hook. Release this hook (pull backwards), and at the same time pull the sub-woofer box upwards.
3. Now remove the sub-woofer.

4.1.5 DAF-module Removal

DAF-bracket



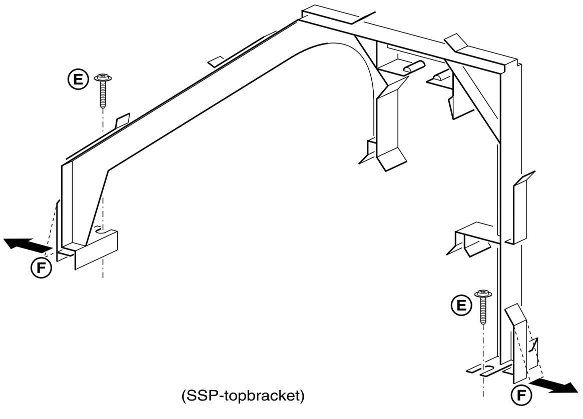
CL 16532149_062.eps
201201

Figure 4-4

How to remove the DAF-module:
1. Press down the snap hook [1].
2. At the same time, slide the complete DAF-module to the left
   Caution: be very careful not to damage the CRT while doing this!.
3. Now lift the module from the LSP top bracket.

4.1.6 Support Brackets Removal

SSP support bracket

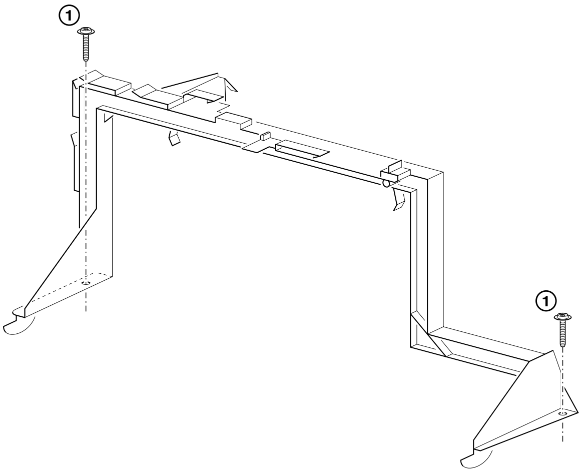


CL 96532023_004.ai
210499

Figure 4-5

How to remove the 'module support bracket' on the Small Signal Panel (SSP):
1. Remove the two fixation screws [E].
2. Pull the snap-hooks [F] to the outside direction, and remove the bracket. The left snap-hook is somewhat difficult to release (with some effort it is possible to release it, by manipulating the hook with a finger underneath the MCS-module at the left hand side).

LSP support bracket



CL 16532149_063.eps
041201

Figure 4-6

How to remove the 'module support bracket' on the Large Signal Panel (LSP):
1. Remove the two fixation screws [1].
2. Remove the Top Supply panel (besides the LSP, see 'Service position 3' below).
3. Now remove the bracket.

4.2 Service Positions

This chassis has several predefined service positions:
1. For the component side of the main chassis panels (SSP, LSP and Top Supply).
2. For the copper side of the Multi Channel Sound (MCS) panel.
3. For the copper side of the Top Supply panel (TSP).
4. For the copper side of both the LSP and TSP.

All service positions are explained in more detail below.

4.2.1 Service Position 1

Overiew 1

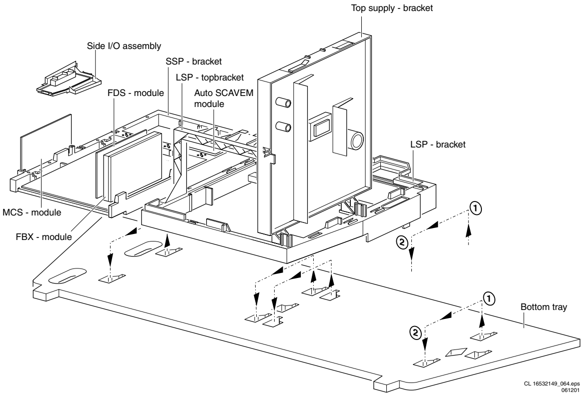


Figure 4-7

1. Pull the complete SSP- and LSP assembly about eight cm backwards
   Caution: be very careful not to damage the CRT panel with the DAF-module!.
   The brackets are not fixed together, but can be repositioned backwards, as if they were one bracket.
2. Hook the brackets in the first row of the fixation-holes in the bottom plate (in other words: re-position the fixation from [1] to [2]).
3. Now all important service test points are accessible at the topside of the SSP.

4.2.2 Service position 2

Overview 2

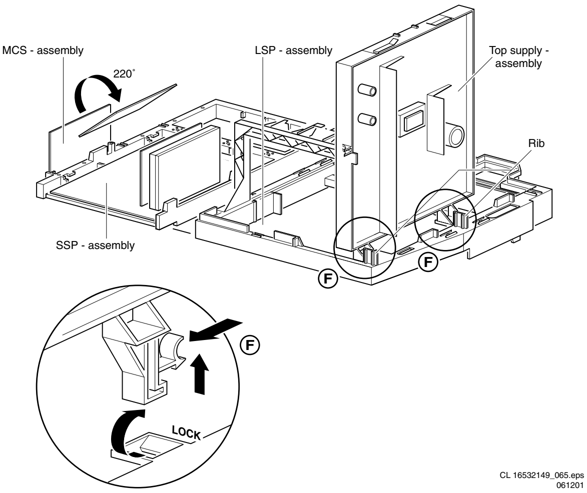


Figure 4-8

In its normal position, the MCS module can be serviced from the copper side (left hand side).
In order to gain access to the other side of the board (reflow-side), do the following:

1. First, release the snap construction at the bottom side of the MCS module. To do this, release the hook with e.g. a screwdriver (approach it from the rear).
2. After release, rotate the board about 220 degrees clockwise (hinge at connectors). The board can lean on the SSP top bracket.
3. All reflow components and test points on this side, are accessible now.

4.2.3 Service Position 3

Overiew 3

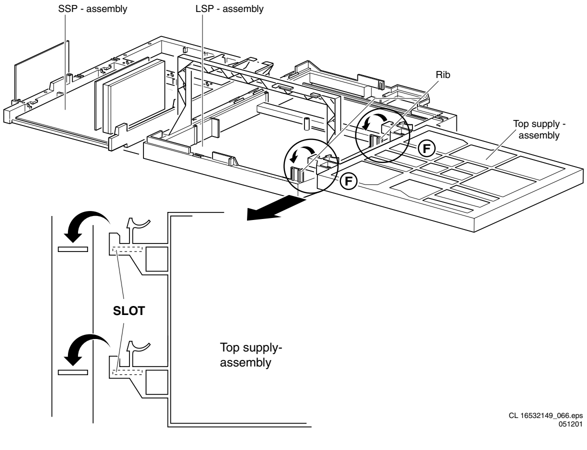


Figure 4-9

In order to gain easy access to the copper side of the Top Supply (TSP) assembly, do the following:

1. Pull the two release hooks (F) of the TSP-bracket backwards (see figure of ‘Service position 2’).
2. After you hear a release click, you can lift the bracket.
3. Now, rotate the assembly 90 degrees clockwise (from vertical to horizontal position).
   Caution: before doing this, release the wire cables from their clamps and, if necessary, disconnect the wire cable 0390 coming from the rotation-coil.
4. Place the two support-posts [F] of the assembly over the two ribs that are available on the right side of the LSP bracket.
5. The copper side of the TSP, with its service test points is available now.

4.2.4 Service position 4

Overiew 4

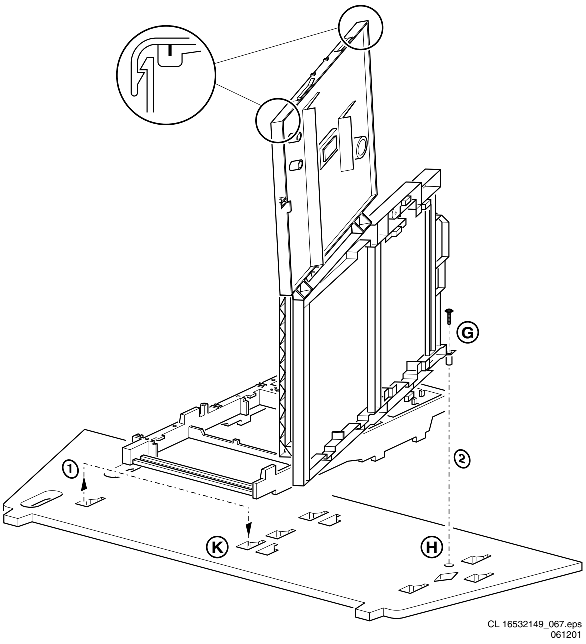


Figure 4-10

In order to gain easy access to the component sides of the LSP and Top Supply assembly, do the following:

1. First, reinforce the above-described ‘TSP fixation’ with a screw (the rear support-post contains a hole for this).
2. Now move as well the SSP- as the LSP bracket about 25 cm to the right.
3. Rotate the complete LSP/TSP assembly 90 degrees anti-clockwise, such that snap hook [G] is placed into hole [H]. If necessary, reinforce this construction with a screw.
4. Now you can measure all the service test points of the LSP on the right hand side, and of the TSP at the left hand side.
5. For measurement safety, shift the left front hook of the SSP bracket in the right SSP hole of the bottom plate (see [K] of service position 1).

4.2.5 FDS-module

One side is easy accessible whit the module on its place. One way to measure the other side (= FBX side) is to remove the FBX and overrule the protections (see 'Repair Tips' in chapter 5).

4.2.6 Feature Box (FBX)

First, remove the shielding of the FBX. Now, the test points on the 'LOT side' are easy accessible.
To get access to the test points on the 'FDS side', you have to remove the FDS module and bypass the RGB-path (see also the 'Repair Tips' in chapter 5).

4.2.7 Auto-SCAVEM

This panel is placed in front of the SSP. Because most of its components are placed on the bottom side, you must lift the panel from its bracket before you can measure it. Therefore release the two fixation clamps (one at the 'SSP side' and one at the 'LSP side'), and lift the panel.

4.3 Board Removal

Sometimes, it can be necessary to swap a complete Printed Wiring Board (PWB). How that can be done is explained below.

4.3.1 Small Signal Panel (SSP)

1. Remove the ‘module support bracket’ (see paragraph 4.1.6).
2. Release the three fixation clamps on the right hand side of the bracket.
3. Press the board upwards at the same side.
4. Remove the board from the bracket.

4.3.2 Top Supply Panel (TSP)

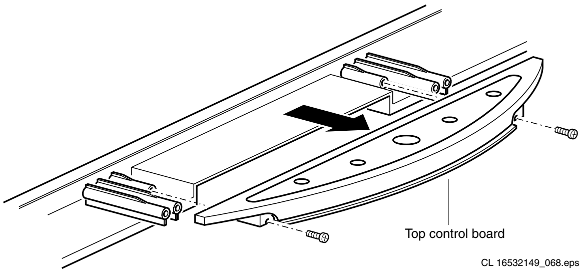
1. Remove the fixation screws (one at the top, one on the right side, and two on the left side).
2. Release the two top-corner snap constructions (see circle in figure ‘Position 4’), by forcing them outwards.
3. The panel hinges at the bottom of the bracket. Remove the bracket, by forcing the two sides of the bracket somewhat outwards.

4.3.3 Large Signal Panel (LSP)

1. Remove the Top Supply module (see paragraph above)
2. Remove the ‘module support bracket’ (see paragraph 4.1.6).
3. Remove the fixation screw in the middle of the Large Signal board.
4. Release the fixation clamps on the right, rear, and front side of the bracket (the board hinges at the left side).
5. Remove the board from the bracket.

4.3.4 Top Control Assy/Panel

Control assy



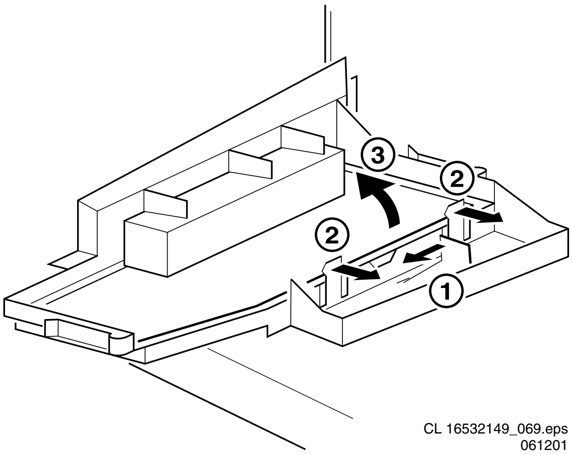
CL 16532149_068.eps
051201

Figure 4-11

1. Release both fixation screws about 5 full turns.
2. Pull the complete assy back- and upwards (it hinges in the cabinet front).
3. Flip the assy, and you can access the board by releasing (carefully) the four fixation clamps.

4.3.5 Side-I/O Assy/Panel

Side I/O



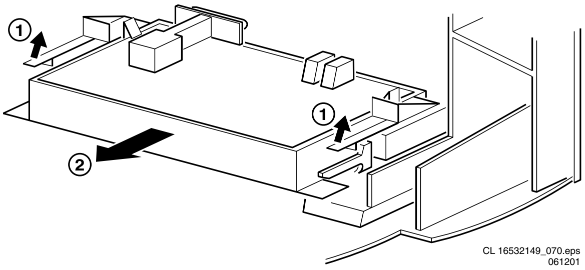
CL 16532149_069.eps
061201

Figure 4-12

1. Release the snap-hook [1] with your finger.
2. At the same time, pull the assy backwards [2].
3. Release the two fixation clamps on the right side of the bracket (the board hinges at the left side).
4. Remove the board from the bracket.

4.3.6 Mains Switch Assy/Panel

Mains Switch



CL 16532149_070.eps
061201

Figure 4-13

1. Release the two fixation clamps (rather difficult to reach), by pushing them upwards [1]. At the same time, pull the complete assy backwards [2]
   Note: be aware that the degaussing coil can hamper this.
2. Release the two fixation clamps on the two sides of the bracket (the board hinges at the connector side).
3. Remove the board from the bracket.
4. When the light guide (sitting in the cabinet, in front of the LEDs) is defective, you can replace it by pushing it forwards at the left side (seen from the rear). It hinges at the right side.

4.3.7 Wireless Active Surround Box

Exploded view

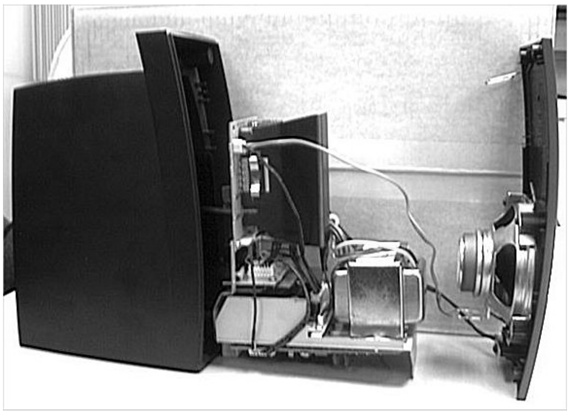


Figure 4-14

The box consists of four panels (W1 to W4), which are part of one family/combi-board. They are fixed together with wire cables (sometimes without connectors).

1. Remove the four screws which hold the front cover.
2. If necessary, unplug the loudspeaker and the LED panel (W4).
3. Remove the two screws which hold the clickfit connector for the passive loudspeaker.
4. Remove the six screws that hold the metal frame (which hold all PWBs and transformer).
5. See photo above for the exploded view.

PWB location

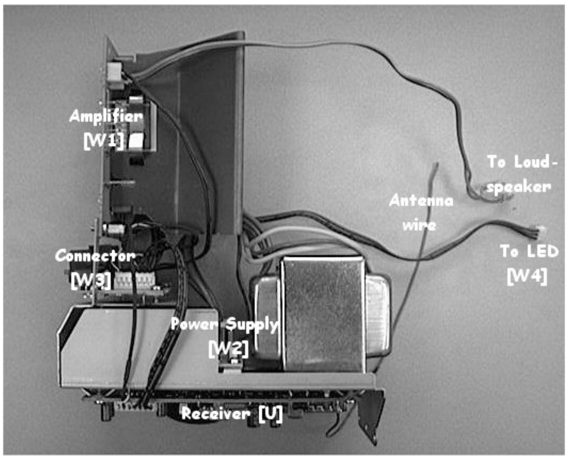


Figure 4-15

Each panel is now easily accessible to measure. If necessary, remove the panel from the metal frame by removing the belonging screws. See photo above for the panel positions. See further chapter 8.7 of the Training Manual MG3.1E.

To reassemble the box, do all processes in reverse order.
Be sure that, before the front cover is mounted:

- The (blue) antenna wire is mounted correctly in its guiding brackets.
- The 'foam dust cover' is replaced on the channel selector switch (on the bottom PWB).
- All wires/cables are returned in their original positions.

4.4 Set Reassembly

To reassemble the whole set, do all processes in reverse order.

Be sure that, before the rear cover is mounted:

- The mains cord is mounted correctly in its guiding brackets.
- All wires/cables are returned in their original positions.

5. Service Modes, Error Codes and Fault Finding

Index of this chapter:

1. Test Points
2. Service Modes
3. Problems and Solving Tips (related to TV-settings).
4. ComPair
5. Error Codes
6. Protections
7. Repair/Service Tips

5.1 Test Points

5.1.1 General Test Conditions

Perform the measurements under the following conditions:

- Service Default Mode.
- Video: Colour bar signal.
- Audio: 3 kHz left, 1 kHz right.

5.1.2 Waveform Test Points

The chassis is equipped with test points, which are, in most cases, printed on the circuit board assemblies (if not, please check chapter 6 ‘test point overview’). They refer to the functional blocks. The test points have names starting with I for IF, S for sound etc. The numbering is done in a logical sequence for diagnostics.

Note: Not all test points are measured, but they can serve as identification names in Service communication (e.g. ComPair fault find trees, SearchMan files).
In the following cases, there will be no waveform:

- When already a V_{DC} voltage is displayed in the diagrams, or when the waveform does not have an added value.
- External AV-inputs are not measured, as the waveform is equal to the source (dependent of load resistor matching).

5.1.3 DC-voltage Test Points

From practically all semiconductor pins, the DC-voltages are measured. These values are displayed in the circuit diagrams. If a DC-value is displayed between brackets then this value is measured in STANDBY-mode.

5.2 Service Modes

Service Default Mode (SDM) and Service Alignment Mode (SAM) offer several features for the service technician, while the Customer Service Mode (CSM) is used for communication between a Philips Customer Care Centre (P3C) and a customer.

There is also the option of using ComPair, a hardware interface between a computer (see requirements below) and the TV chassis. It offers the ability of structured troubleshooting, test pattern generation, error code reading, software version readout, and software upgrading.
Requirements: a Pentium processor, Windows 95/98, and a CD-ROM drive (see also paragraph 5.4).

5.2.1 Service Default Mode (SDM)

Purpose

- To create a pre-defined setting to get the same measurement results as given in this manual.
- To override SW protections (only when SDM is entered via the 'service pins' on SSP connector 0356).

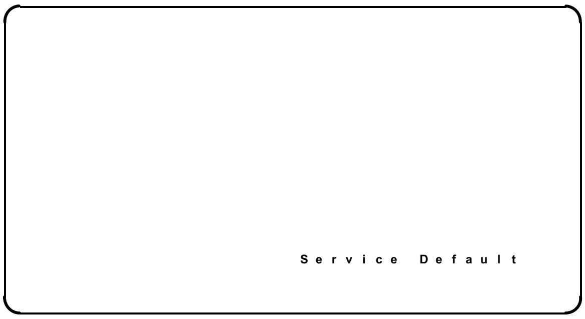
Specifications

- Tuning frequency: 475.25 MHz for PAL/SECAM.
- Colour system: SECAM L for France or PAL B/G for the rest of Europe.
- All picture settings at 50 % (brightness, colour, contrast).
- All sound settings at 50 % (except volume: at 25 %).
- All service-unfriendly modes (if present) are disabled, like:
  - (sleep) timer,
  - child/parental lock,
  - blue mute,
  - auto switch-off (when no 'IDENT' video signal was received for 10 minutes),
  - skip/blank of non-favourite pre-sets,
  - smart modes,
  - auto store of personal presets,
  - auto user menu time-out.

How to Enter SDM
Use one of the following methods:

- Use the standard RC-transmitter and key in the code **0 6 2 5 9 6**, directly followed by the ‘MENU’ button.
  Note: It is possible that, together with the SDM, the main menu will appear. To switch it off, push the ‘MENU’ button again).
- Short pins 2 and 3 on connector 0356 of the SSP (see Fig. 'SSP Component Side' in chapter 8) while the set is in the normal operation mode.
  Caution: Entering SDM by this method will override all the processor-controlled protections. When doing this, the service-technician must know exactly what he is doing, as it could lead to damaging the set.
- Use the ‘DEFAULT’ button on the Dealer Service Tool (RC7150).
- Use the DST-emulation feature of ComPair.

SDM Menu



CL 16532044_031.eps
140501

Figure 5-1

After entering SDM, a blank screen is visible, with 'Service Default' in the lower right part for recognition.

How to Navigate
To toggle to the SAM mode, use a standard customer RC-transmitter and key in the code **0 6 2 5 9 6**, directly followed by the ‘OSD (i+)’ key.

How to Exit
Switch the set to STANDBY by pressing the Standby button(⏻) on the remote control transmitter. If you switch the set 'off' via the mains switch, the set will return in SDM when Mains power is re-applied.

5.2.2 Service Alignment Mode (SAM)

Purpose

- To perform (software) alignments.
- To change option settings.
- To easily identify the used software version.
- To view operational hours.
- To display (or clear) the error code buffer.

Specifications

- Software version.
- Operational hours counter.
- Options setting.
- Error buffer reading and erasing.
- Software alignments.

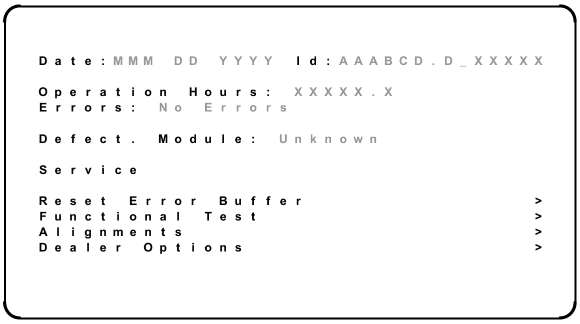
How to Enter

Use one of the following methods:

- Use the standard RC-transmitter and key in the code **0 6 2 5 9 6** directly followed by the 'OSD (i+)' button.
- Short pins 1 and 2 of connector 0356 on the SSP.
- Use the 'ALIGN' button on the Dealer Service Tool (RC7150), enter password **3 1 4 0** and press 'OK'.
- Use the DST-emulation feature of ComPair.

The following screen is visible:

SAM Menu



```
Date:MMM DD YYYY Id:AAABCD.D_XXXXX

Operation Hours: XXXXX.X
Errors: No Errors

Defect. Module: Unknown

Service

Reset Error Buffer                       >
Functional Test                          >
Alignments                               >
Dealer Options                           >
```

CL16532044_032.eps
140501

Figure 5-2

- **Date.** Displays the software date.
- **ID.** Displays the main software version of the ROM (example: MG32E11. 0_01234 = AAABCD.D_XXXXX).
  - A = the chassis name (MG32).
  - B = the region: E = Europe, A = Asia Pacific, U = NAFTA, L = LATAM.
  - C = the language cluster number.
  - D = the main software version number.
  - X = latest 5 digits of 12nc code software.
  - For the latest software versions, see the 'Product Survey - Colour Television' publication, which is issued 4 times per year.
- **Operation Hours.** Displays the accumulated total of operation hours.
- **Errors** (followed by maximal 10 errors). The most recent error is displayed at the upper left (for an error explanation see paragraph 5.5).
- **Defect. Module.** Here, the module that generates the error is displayed. If there are multiple errors in the buffer that have not all been generated by a single module there is probably another defect. It will then display the message 'Unknown' here.
- **Reset Error Buffer.** When you press the 'OK' button, the error buffer is reset.
- **Functional Test.** All devices are tested via the 'OK' button. Eventual errors are displayed in the error buffer. The error buffer is not erased, the content returns when this test is terminated.
- **Alignments.** This will activate the 'Alignments' sub-menu.
- **Dealer Options.** Extra features for the dealers.

Note: When an NVM was corrupted (or replaced) in the MG3.1E chassis, the microprocessor replaced the content with default data (to assure that the set can operate). However, all presets and alignment values are gone now, and option numbers are also not correct. So, this was a very drastic way. In the MG3.2E chassis, the procedure is implemented in another way:

- The moment the processor recognises a corrupted NVM, an extra line will be added to the SAM menu: '**Initialise NVM**'.
- Now, you can do two things (dependent of the service instructions at that moment):
  - Save the content of the NVM via ComPair for development analysis, **before** initialising. This will give the Philips Service department an extra possibility for diagnosis (e.g. when Development asks for this).
  - Initialise the NVM (same as in the past, however now it happens conscious).

How to Navigate

- In SAM, you can select the menu items with the 'CURSOR UP/DOWN' key on the RC-transmitter. The selected item will be highlighted. When not all menu items fit on the screen, move the 'CURSOR UP/DOWN' key to display the next/previous menu items.
- With the 'CURSOR LEFT/RIGHT' keys, it is possible to:
  - (De)activate the selected menu item.
  - Change the value of the selected menu item.
  - Activate the selected submenu.
- When you press the 'MENU' key in a submenu, you will return to the previous menu.

How to Exit

Use one of the following methods:

- Press the 'MENU' button on the RC-transmitter.
- Switch the set to 'STANDBY' (⏻) via the RC-transmitter.
- Switch the set 'off' and 'on' with the mains switch.
- Press the 'EXIT' button on the DST.

5.2.3 Customer Service Mode (CSM)

Purpose

When a customer is having problems with his TV-set, he can call his dealer. The service technician can than ask the customer to activate the CSM, in order to identify the status of the set. Now, the service technician can judge the severness of the complaint. In many cases, he can advise the customer how to solve the problem, or he can decide if it is necessary to visit the customer.
The CSM is a read only mode, therefore modifications in this mode are not possible.

How to Enter CSM

Use one of the following methods:

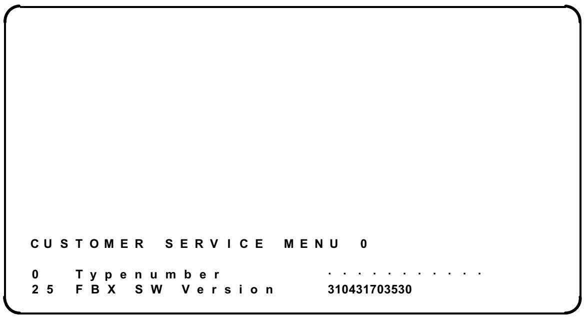
- Press the 'MUTE' button on the RC-transmitter simultaneously with the 'MENU' button on the TV (top control) for, at least, 4 seconds (be sure to point the RC-transmitter directly to the IR-receiver of the set, otherwise you will activate the 'Dealer Demo Mode').
- Key in the code **1 2 3 6 5 4** via the standard RC transmitter.

Notes

- Activation of the CSM is only possible if there is no (user) menu on the screen!
- If you do not point the RC-transmitter correctly to the RC-receiver in the set, and you push the 'MENU' button for more than 6 s, the TV starts in 'demo' mode. To leave this mode, push 'MENU' again for more than 6 s.

After activation of the Customer Service Menu, the following screen (Customer Service Menu 0) will appear:

CSM Menu 0



```
CUSTOMER SERVICE MENU 0

0   Typenumber          ............
25  FBX SW Version      310431703530
```

CL16532149_072.eps
061201

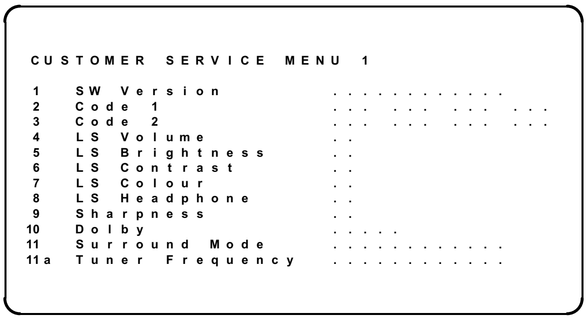
Figure 5-3

- **Type number.** This information (e.g. 32PW9767/12) is very helpful for a helpdesk or repair shop, as reference for further diagnosis. In this way, it is not necessary for the customer to look at the rear of his TV-set.
- **FBX SW Version.** The 12nc-code of the build-in Feature Box software version. For the latest software versions, see the ‘Product Survey - Colour Television’ publication, which is issued four times per year.

By means of the ‘CURSOR-DOWN’ knob on the RC-transmitter the Customer Service Menu 1 will appear.
By means of the ‘CURSOR-UP’ knob on the RC-transmitter the Customer Service Menu 0 will appear again.

Customer Service Menu 1 represents following information:

CSM Menu 1



```
CUSTOMER SERVICE MENU 1

1    SW Version         ............
2    Code 1             ... ... ... ...
3    Code 2             ... ... ... ...
4    LS Volume          ..
5    LS Brightness      ..
6    LS Contrast        ..
7    LS Colour          ..
8    LS Headphone       ..
9    Sharpness          ..
10   Dolby              .....
11   Surround Mode      ............
11a  Tuner Frequency    ............
```

CL16532044_034.eps
140501

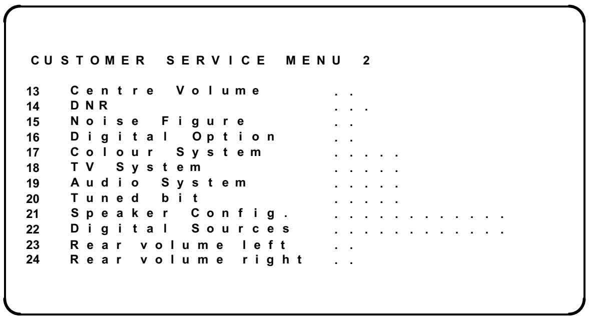
Figure 5-4 CL

- **Software version.** The build in software version (e.g. MG32E11.0_XXXXX). You will find details of the software versions in the chapter 'Software Survey' of the 'Product Survey - Colour Television' publication. This publication is issued four times a year.
- **Code 1.** Gives the last five errors of the error buffer. As soon as the built-in diagnose software has detected an error the buffer is adapted (see paragraph 5.5.3 for a description).
- **Code 2.** Gives the first five errors of the error buffer. As soon as the built-in diagnose software has detected an error the buffer is adapted. The last occurred error is displayed on the leftmost position of code 2. Each error code is displayed as a 3 digit number. When less than 10 errors occur, the rest of the line(s) is (are) empty. In case of no errors, the text 'No Errors' is displayed (see paragraph 5.5.3 for a description).
- **LS Volume.** Gives the Last Status of the volume as set by the customer for this selected transmitter. The value can vary from 0 (volume is minimum) to 36 (volume is maximum). Volume values can be changed via the volume key on the RC-transmitter.
- **LS Brightness.** Gives the Last Status of the brightness as set by the customer for this selected transmitter. The value can vary from 0 (brightness is minimum) to 63 (brightness is maximum). Brightness values can be changed via the 'CURSOR LEFT' and 'CURSOR RIGHT' keys on the RC-transmitter after pressing the 'MENU' button and selecting 'PICTURE' and 'BRIGHTNESS'.
- **LS Contrast.** Gives the Last Status of the contrast as set by the customer. The value can vary from 0 (contrast is minimum) to 63 (contrast is maximum). Contrast values can be changed via 'CURSOR LEFT' and 'CURSOR RIGHT' keys on the RC-transmitter after pressing the 'MENU' button and selecting 'PICTURE' and 'CONTRAST'.
- **LS Colour.** Gives the Last Status of the colour saturation, as set by the customer. The value can vary from 0 (colour is minimum) to 63 (colour is maximum). Colour values can be changed via 'CURSOR LEFT' and 'CURSOR RIGHT' keys on the RC-transmitter after pressing the 'MENU' button and selecting 'PICTURE' and 'COLOUR'.
- **LS Headphone.** Gives the Last Status of the headphone volume, as set by the customer. The value can vary from 0 (volume is minimum) to 24 (volume is maximum). Headphone volume values can be changed via the 'CURSOR LEFT' and 'CURSOR RIGHT' keys on the RC-transmitter after pressing the 'MENU' button and selecting 'SOUND' and 'HEADPHONE'.
- **Sharpness.** Gives the sharpness value. The value can vary from 0 (sharpness is minimum) to 7 (sharpness is maximum). In case of bad antenna signals, a too high value of the sharpness can result in a noisy picture. Sharpness values can be changed via the 'CURSOR LEFT' and 'CURSOR RIGHT' keys on the RC-transmitter after pressing the 'MENU' button and selecting 'PICTURE' and 'SHARPNESS'.
- **Dolby.** Indicates whether the received transmitter transmits Dolby sound (present) or not (not present). Attention: The presence of Dolby can only be tested by the software on the Dolby Signalling bit. If a Dolby transmission is therefore received without a Dolby Signalling bit, then this indicator will show 'not present' even though such a Dolby transmission is received.
- **Surround Mode.** Indicates the by the customer selected surround mode (or automatically chosen mode). In case the set is a Non-Dolby set, there will be displayed '0'. If it is a Dolby-set then is displayed: 'Stereo', 3D Surround', 'Dolby Pro Logic', 'Dolby 3 Stereo', or 'Hall'. These settings can be influenced by toggling the surround mode button on remote control (white button). It can also have been selected automatically by signalling bits (internal software
- **Tuner Frequency.** Indicates the frequency the selected transmitter is tuned to. The tuner frequency can be changed via the 'CURSOR LEFT' and 'CURSOR RIGHT' keys for fine tune or by entering directly with the digit keys 0 to 9 on the RC-transmitter after opening the installation menu and selecting ‘MANUAL INSTALLATION’. Pressing 'TIMER' and 'ENLARGE' at the same time can open the installation menu.

By means of the 'CURSOR-DOWN' knob on the RC-transmitter the Customer Service Menu 2 will appear. By means of the 'CURSOR-UP' knob on the RC-transmitter the Customer Service Menu 1 will appear again.

Customer Service Menu 2 represents following information:

CSM Menu 2



```
CUSTOMER SERVICE MENU 2

13  Centre Volume        ..
14  DNR                  ...
15  Noise Figure         ..
16  Digital Option       ..
17  Colour System        .....
18  TV System            .....
19  Audio System         .....
20  Tuned bit            .....
21  Speaker Config.      ............
22  Digital Sources      ............
23  Rear volume left     ..
24  Rear volume right    ..
```

CL 16532149_073.eps
061201

Figure 5-5

- **Centre Volume.** Gives the volume value of the centre loudspeaker. This value can vary from 0 (minimum volume) to 63 (maximum volume). Centre volume can be changed via the 'CURSOR LEFT' and 'CURSOR RIGHT' keys on the RC-transmitter after pressing the 'MENU' button and selecting 'SOUND', 'DOLBY PRO LOGIC' and selecting 'CENTRE VOLUME'. This feature is only available when surround mode is in 'DOLBY PRO LOGIC', 'DOLBY 3 STEREO', or '3D SURROUND'.
- **DNR.** Gives the setting of the Dynamic Noise Reduction for the selected transmitter. The DNR can be changed via the 'DNR' button on the remote control handset. The following selections are possible:
  - 'OFF - MIN - MED - MAX' or,
  - 'OFF - AUTOMATIC' (for sets with 'Automatic Noise Reduction').
- **Noise Figure.** Gives the noise ratio for the selected transmitter. This value can vary from 0 (good signal) to 127 (average signal) and to 255 (bad signal).
- **Digital Option.** Gives the selected digital mode. Change via the 'CURSOR LEFT' and 'CURSOR RIGHT' keys on the RC-transmitter, after pressing the 'MENU' button and selecting 'PICTURE', 'DIGITAL OPTIONS'. Options are:
  - 100 HZ DIG. SCAN.
  - PIXEL PLUS.
  - DOUBLE LINES.
- **Colour System.** Gives information about the colour system of the selected transmitter.
  - Black and white: No colour carrier received
  - PAL: PAL signal received
  - SECAM: SECAM signal received
  - NTSC: NTSC signal received
- **TV System.** Gives information about the video system of the selected transmitter.
  - BG: BG signal received
  - DK: DK signal received
  - I: PAL I signal received
  - L: SECAM L signals received
  - M38.9: NTSC M signal received with video carrier on 38.9 MHz
  - MN: NTSC M signal received
- **Audio System.** Gives information about the audio system of the selected transmitter.
  - Sound Muted: No sound
  - Dolby Pro Logic: Dolby Pro Logic sound received
  - Mono: Mono sound received
  - Stereo: Stereo sound received
  - Dual I: Language I received
  - Dual II: Language II received
  - Digital Mono: Digital mono sound is received
  - Digital Stereo: Digital stereo sound is received
  - Digital Dual I: Digital language I is received
  - Digital Dual II: Digital language II is received
- **Tuned bit.** Gives information about the tuning method of the stored pre-set. If a channel is found via 'automatic installation', you will see the value 'On'. When you change this (automatically found) frequency via 'fine tune' adjustment (installation menu - manual installation), the displayed value will change to 'Off'. Therefore, when you see the value 'Off' in this line, it is an indication that the received channel is a non-standard signal (e.g. of a VCR).
- **Speaker config.** Gives the speaker configuration settings. In case the set is a non-Dolby set, it displays '0'. If it is a Dolby-set, it displays: 'FULL INTERNAL', 'L/R EXTERNAL', 'SURROUND EXTERNAL' or 'FULL EXTERNAL'. Change the speaker configuration (for a Dolby-set), via the 'CURSOR LEFT' and 'CURSOR RIGHT' keys on the RC-handset after opening the 'INSTALLATION' menu and selecting 'SETUP'. Open the 'INSTALLATION' menu by pressing the 'TIMER' and 'ENLARGE' buttons at the same time.
- **Digital Sources.** Gives the configuration setting for the digital source. If one of these is selected, the starting point is a top quality signal on that input and a number of settings are therefore changed automatically. Change the digital source via the 'CURSOR LEFT' and 'CURSOR RIGHT' keys on the RC-transmitter after opening the installation menu and selecting 'SETUP'. Pressing 'TIMER' and 'ENLARGE' at the same time can open the installation menu. It displays:
  - NONE
  - EXT1, 2, 3, or 4
  - EXT1 + DIG. AUDIO
  - EXT1, 2, 3, or 4 + DIG. STB (Digital Set Top Box)
  - FRONT
- **Rear volume Left.** Only valid when Dolby Digital option is 'on'. This gives the volume value of the left surround sound loudspeaker. This value can vary from 0 (minimum volume) to 63 (maximum volume). Rear volume left can be changed via the ‘cursor left’ and ‘cursor right’ keys on the remote control handset after pressing the ‘menu’ button and selecting ‘sound’, ‘Surround settings’ and selecting ‘Rear volume left’.
- **Rear Volume Right.** Only valid when the Dolby Digital option is 'on'. This gives the volume value of the right surround sound loudspeaker. This value can vary from 0 (minimum volume) to 63 (maximum volume). Rear volume right can be changed via the ‘cursor left’ and ‘cursor right’ keys on the remote control handset after pressing the menu button and selecting ‘sound’, ‘Surround settings’ and selecting ‘Rear volume right’.

How to Exit CSM

Use one of the following methods:

- After you press a key on the RC-transmitter (with exception of the 'CHANNEL' and 'VOLUME' keys).
- After you switch the TV-set 'off' with the mains switch.

5.3 Problems and Solving Tips (Related to TV-settings)

Note: Below described problems are all related to the TV settings. The procedures to change the parameter (or status) of the different settings are described.

5.3.1 Picture Problems

Worse Picture Quality in Case of Digital Sources (e.g. DVD)

1. Check line ‘Digital sources’. This will give the indication ‘Front’, ‘Ext1’, ‘Ext1 + Dig. Audio’, ‘Ext2’, ‘Ext3’, ‘Ext4’ or ‘None’.

2. Check if the digital source is really connected to the indicated external input. If not, change the input to the correct one.

Snowy/Noisy Picture
Check line 'Noise Figure'. In case the value is 127 or higher and also high on other programs, check the aerial cable/aerial system.

Picture too Dark
1. Press 'Smart Picture' button on the Remote Control handset. In case picture improves, raise the brightness value or raise the contrast value. The new value(s) are automatically stored for all TV channels.
2. After switching on the Customer Service Mode, the picture is OK. Raise the brightness and/or the contrast value. The new value(s) are automatically stored for all TV channels.
3. Check lines 'Brightness' and 'Contrast'. The brightness and/or the contrast value is low (<15). Raise the brightness and/or contrast value.

Picture too Bright
1. Press 'Smart Picture' button on the Remote Control handset. In case picture improves, reduce the brightness value or reduce the contrast value. The new value(s) are automatically stored for all TV channels.
2. After switching on the Customer Service Mode, the picture is OK. Reduce the brightness value or reduce the contrast value. The new value(s) are automatically stored for all TV channels.
3. Check lines 'Brightness' and 'Contrast'. The brightness and/or the contrast value is high (>70). Reduce the brightness value or raise the contrast value.

Fading Picture
Digital scan effect. Check line 'DNR'. The status of 'DNR' is a value between 0 and 100. This value has not really a practical explanation. In case you have a fading picture, you could influence the 'DNR'-level by navigating route: ‘Menu’ - ‘Picture’ - ‘DNR’. There are four different levels selectable.

White Line around Picture Elements and Text
1. Press 'Smart Picture' button on the Remote Control handset. In case picture improves, reduce the sharpness value. The new value(s) are automatically stored for all TV channels.
2. After switching on the Customer Service Mode, the picture is OK. Reduce the sharpness value. The new value(s) are automatically stored for all TV channels.
3. Check line 'Sharpness'. Reduce the sharpness value. The new value(s) are automatically stored for all TV channels

No Picture
Check line ‘Tuned bit’. In case the value is ‘on’, install the required program again. Open the installation menu by pressing ‘Timer’ and ‘Enlarge’ at the same time, and perform manual installation.

Blue Picture and/or Unstable Picture
No proper signal is received. Check line 'Noise Figure'. If value is higher then 127, suspect the signal. Check your cable- or aerial signal.

Black and White Picture.
Check line 'Colour'. In case the value is low (<30), raise the value of colour. The new value(s) are automatically stored for all TV channels.

No Colours/ Colours not Correct / Unstable Picture / Colour Lines around Picture Elements.
Check lines 'TV System'. Check if system is OK.
BG stand for PAL B/G, L/La for SECAM L, I for PAL I or L', D/K or SECAM D/K. They correspond with the System selections made in the 'install' menu, respectively West Europe, France, UK, and East Europe. In case system is wrong, correct this via manual installation.

Menu Text not Sharp Enough.
1. Press 'Smart Picture' button on the Remote Control handset. In case picture improves, reduce the contrast value. The new value(s) are automatically stored for all TV channels.
2. After switching on the Customer Service Mode, the picture is OK. Reduce the contrast value. The new value(s) are automatically stored for all TV channels.
3. Check line 'Contrast'. If the value is high (>75), reduce it.

5.3.2 Sound Problems

No Sound from Left and Right Speaker.
1. Press 'Smart Sound' button on the Remote Control handset. In case sound improves, raise the volume value. The new value(s) are automatically stored for all TV channels.
2. After switching on the Customer Service Mode, the volume is OK. Raise the volume value. The new value(s) are automatically stored for all TV channels.
3. Check line 'Volume'. The value is low, so raise it. The new value(s) are automatically stored for all TV channels.

Sound too Loud for Left and Right Speaker.
1. Press 'Smart Sound' button on the Remote Control handset. In case sound improves, reduce the volume value. The new value(s) are automatically stored for all TV channels.
2. After switching on the Customer Service Mode, the volume is OK. Reduce the volume value. The new value(s) are automatically stored for all TV channels.
3. Check line 'Volume'. The value is high, so reduce it. The new value(s) are automatically stored for all TV channels.

No Sound from Centre Speaker.
1. Check line ‘Centre Volume’. If the value is low, raise it.
2. In case of a Dolby set, check line ‘Surround mode’. The centre speaker is only active in the surround modes 3D Surround, ProLogic, Dolby 3 Stereo and DD.

Sound too Loud from Centre Speaker.
Check line ‘Centre Volume’. If the value is high, reduce it.

No Sound from Rear Speakers.
1. Check line ‘Surround mode’. In case this line is ‘Off’ or ‘Hall’, change the surround mode into 3D Surround, ProLogic, Dolby 3 Stereo and DD.
2. Check line ‘Rear volume’. If the value is low, raise it. The new value(s) are automatically stored for all TV channels.
3. Check lines ‘Rear volume left’ and ‘Rear volume right’. If the value is low, raise them. The new value(s) are automatically stored for all TV channels.
4. Check if the surround boxes receive sound, the green LED should be on.
5. Check if the correct RF-channel is chosen. Look at the bottom of the active box for the RF-channel of the surround speakers. Check the installed RF-channel in the installation menu. If this RF-channel is different, change it to the correct one.

5.4 ComPair

5.4.1 Introduction

ComPair (Computer Aided Repair) is a service tool for Philips Consumer Electronics products. ComPair is a further development on the European DST (service remote control), which allows faster and more accurate diagnostics. ComPair has three big advantages:

- ComPair helps you to quickly get an understanding on how to repair the chassis in a short time by guiding you systematically through the repair procedures.
- ComPair allows very detailed diagnostics (on I^{2}C level) and is therefore capable of accurately indicating problem areas. You do not have to know anything about I^{2}C commands yourself because ComPair takes care of this.
- ComPair speeds up the repair time since it can automatically communicate with the chassis (when the microprocessor is working) and all repair information is directly available. When ComPair is installed together with the SearchMan electronic manual of the defective chassis, schematics and PWBs are only a mouse click away.

5.4.2 Specifications

ComPair consists of a Windows based faultfinding program and an interface box between PC and the (defective) product. The ComPair interface box is connected to the PC via a serial or RS232 cable.
In this chassis, the ComPair interface box and the TV communicate via a bi-directional infrared link.

The ComPair faultfinding program is able to determine the problem of the defective television. ComPair can gather diagnostic information in two ways:

- **Automatic** (by communication with the Receiver box): ComPair can automatically read out the contents of the entire error buffer. Diagnosis is done on I^{2}C level. ComPair can access the I^{2}C bus of the Receiver box. ComPair can send and receive I^{2}C commands to the micro controller of the Receiver box. In this way, it is possible for ComPair to communicate (read and write) to devices on the I^{2}C busses of the Receiver box.
- **Manually** (by asking questions to you): Automatic diagnosis is only possible if the micro controller of the Receiver box is working correctly and only to a certain extend. When this is not the case, ComPair will guide you through the faultfinding tree by asking you questions (e.g. *Does the screen give a picture? Click on the correct answer: YES / NO*) and showing you examples (e.g. *Measure test-point I7 and click on the correct oscillogram you see on the oscilloscope*). You can answer by clicking on a link (e.g. text or a waveform picture) that will bring you to the next step in the faultfinding process.

By a combination of automatic diagnostics and an interactive question/answer procedure, ComPair will enable you to find most problems in a fast and effective way.

Beside fault finding, ComPair provides some additional features like:

- Up- or downloading of pre-sets.
- Managing of pre-set lists.
- Emulation of the (European) Dealer Service Tool (DST).
- If both ComPair and SearchMan (Electronic Service Manual) are installed, all the schematics and the PWBs of the set are available by clicking on the appropriate hyperlink. **Example:** *Measure the DC-voltage on capacitor C2568 (Schematic/Panel) at the SSP.*
  - Click on the 'Panel' hyperlink to automatically show the PWB with a highlighted capacitor C2568.
  - Click on the 'Schematic' hyperlink to automatically show the position of the highlighted capacitor.

Stepwise Start Up / Shut Down

Under normal circumstances, a fault in the power supply, or an error during start-up, will switch the television to protection mode. ComPair can take over the initialisation of the television. In this way it is possible to distinguish which part of the start-up routine (hence which circuitry) is causing the problem.

Stepwise start up explanation

This is realised via ComPair and is very helpful when a protection is activated (see also chapter 5.6).

Table 5-1

State	Mode description	Display LEDs	Enabled protections
0	- Low power standby - uP in Standby	Red 'on'	None
1	- High power standby - TV-set in standby	Red 0.5 Hz	None
2	- Supply 'on' - Protections 5V2, 8V6, and DC-PROT activated.	Orange/ Green0.25 Hz	67, 68, and 76
3	- Sound ICs initialised - Protections FBX- and TUNER activated.	Orange/ Green0.5 Hz	+ 77 and 80
4	- EHT startup - No black-current stabilisation - Protections VFB, HFB, LDP, and BC-PROT activated (blanked picture).	Orange/ Green2 Hz	+ 70, 71, 73, and 74
5	- TV operates - Unblanked picture.	Orange/ Green10 Hz	

Stepwise shut down explanation

In the stepwise shutdown mode, state 2 is skipped (it is not possible to de-initialise ICs).

Table 5-2

State	Mode description	Display LEDs(*)	Disabled protections
5	- TV operates - Unblanked picture.	Orange/ Green10 Hz	-
4	- EHT startup - No black-current stabilisation - All protections are enabled.	Orange/ Green2 Hz	-
3	- Sound ICs stay initialised - All protections are 'off'.	Orange/ Green0.5 Hz	74, 73, 71, and 70
1	- High power standby- TV-set in standby	Red 0.5 Hz	80, 77, 76, 68, and 67
0	- Low power standby- uP in Standby	Red 'on'	-

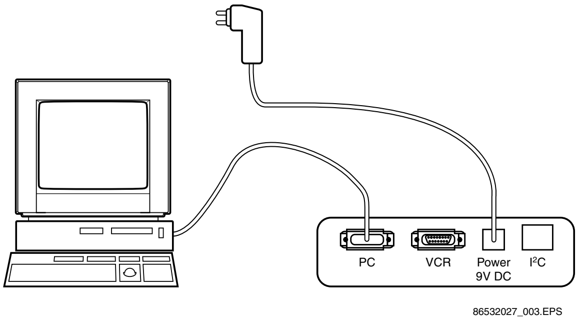
Note (*): When the set is in stepwise mode and, due to stepping-up, a protection is activated; the set will really go into protection (blinking red LED). The set will not leave the stepwise-mode however. By stepping up, the set can be activated again, until state X where the protection was activated. At state (X-1) diagnostic measurements can be performed.

5.4.3 How to Connect

1. First, install the ComPair Browser software on your PC (read the installation instructions carefully).
2. Connect the RS232 interface cable between a free serial (COM) port of your PC and the PC connector (marked with 'PC') of the ComPair interface.
3. Connect the Mains power adapter to the supply connector (marked with 'POWER 9V DC') on the ComPair interface.
4. Switch the ComPair interface 'off'.
5. Switch the Receiver box 'off' (remove the Mains power).

6. Point the ComPair interface to the ‘Service send-LED’ on the front of the set.
7. Plug the Mains power adapter in a Mains power outlet and switch on the interface. The green and red LEDs light up together. The red LED extinguishes after approximately 1 second, while the green LED remains lit.
8. Start the ComPair program and read the 'introduction' chapter.

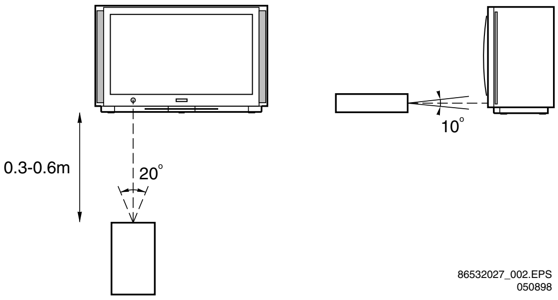
Interface Connection



86532027_003.EPS
050898

Figure 5-6

Interface Arrangement



86532027_002.EPS
050898

Figure 5-7

5.4.4 How to Order

ComPair order codes:

- Starter kit ComPair, SearchMan software, and ComPair interface (excluding transformer): 4822 727 21629
- ComPair interface (excluding transformer): 4822 727 21631
- Starter kit ComPair software (registration version): 4822 727 21634
- Starter kit SearchMan software: 4822 727 21635
- ComPair CD (update): 4822 727 21637
- SearchMan CD (update): 4822 727 21638

5.5 Error Codes

The error code buffer contains all detected errors since the last time the buffer was erased. The buffer is written from left to right. When an error occurs that is not yet in the error code buffer, it is written at the left side and all other errors shift one position to the right.

5.5.1 How to Read the Error Buffer

It is possible to read out the error buffer in several ways:

- **On screen via the SAM.**
  In case picture is OK, the error buffer can be read easiest via the SAM. In the main menu of the SAM the last 10 different error codes occurred are displayed. The most recent detected error code is displayed on the left side.
  Examples:
  - **003 000 000 000 000**: error code 3 is the last and only detected error.
  - **002 003 000 000 000**: error code 3 was first detected and error code 2 is the last detected (newest) error.
- **On screen via the CSM.**
  Same explanation as above.
- **Via ComPair (or DST).**
  See ComPair/DST manual.

5.5.2 How to Clear the Error Buffer

Use one of the following methods:

- By activation of the 'RESET ERROR BUFFER' command in the SAM menu:
- When you transmit the commands 'DIAGNOSE' - '99' - 'OK' with ComPair (or with a DST). This works in all modes, except SAM.

Notes:

- When the error buffer is full (10 codes), no new error can be stored anymore. However, of every error raised is monitored how long it exists in the error buffer. When for any reason a false raised error exists in the buffer, it will be deleted after 50 hours. If this error still is actual after 50 hours, it will be raised again. In this way, it is safeguarded that history of error codes is stored.
- Sometimes it is an option to first write down the error buffer content, reset the buffer, and look again which error codes are generated by the set.
- If the content of the error buffer has not changed for 50 hours, it resets automatically.

5.5.3 Error Codes Overview

In case of non-intermittent faults, clear the error buffer before you begin the repair. These to ensure that old error codes are no longer present.

If possible, check the entire contents of the error buffer. In some situations, an error code is only the result of another error code and not the actual cause (e.g., a fault in the protection detection circuitry can also lead to a protection).

Table 5-3

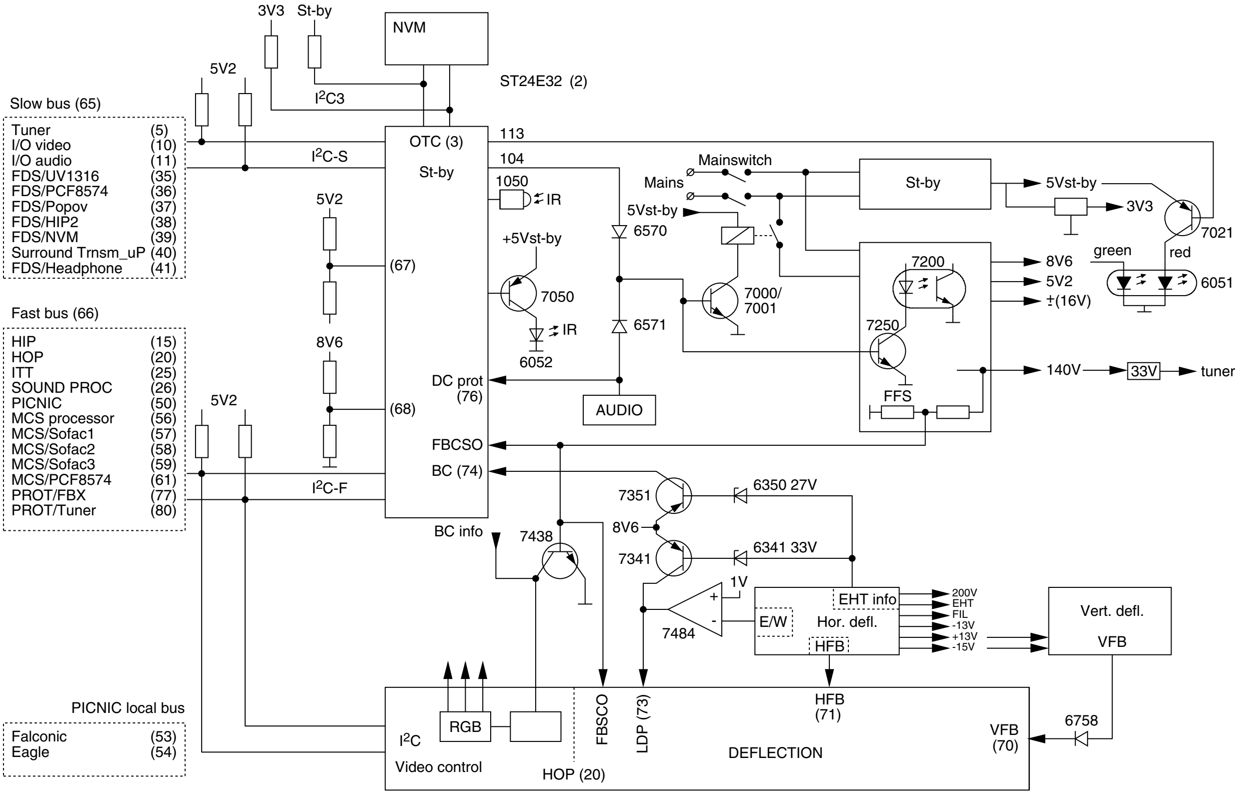
Error	Device	Description	Defective item	Diagram	Defective module indication
2	ST24E32 or M24C32	Non volatile memory	IC7008	K7	Control
3	SAA5801	OTC2.5 microprocessor/TXT	IC7003	K7	Control
5	UV1316	Tuner	U1102	K1	Tuner
10	TEA6415	I/O source select video	IC7208	K8	Source select
11	TEA6422	I/O source selct audio	IC7777	K8	Source select
15	TDA9320H	HIP I/O-video processing	IC7501	K1	Chroma IF I/O
20	TDA9330H	HOP video/deflection processor	IC7300	K6	Video Controller
21	TDA9178	LTP Peaking	IC7402	K6	Video Controller
25	MSP3410D	ITT sound processor	IC7751	K3	Audio module
26	SAA7712H	SEDSP Dolby processor	IC7770	K4	Audio module
35	UV1316	FDS Tuner	U1102	M1	Video Dual Screen Panel
36	PCF8574	FDS I/O Expander	IC7860	M2	Video Dual Screen Panel
37	SAB9079	FDS POPOV	IC7700	M4	Video Dual Screen Panel
38	TDA9320	FDS HIP2	IC7501	M1	Video Dual Screen Panel
39	M24C04	FDS NVM	IC7991	M1	Video Dual Screen Panel
40	83C751	Cordless Transmitter processor	IC7105	R	Surround Transmitter Panel
41	TDA7309	FDS Headphone	IC7620	M5	Video Dual Screen Panel
50	SAA4978H	FBX PICNIC	IC7611	L1	Feature Box
53	SAA4992	FBX FALCONIC	IC7626	L3	Feature Box
54	T8F24EF	FBX EAGLE	IC7724	L2	Feature Box
56	83C654	MCS processor	IC7803	N3	Digital Audio Module
57	TDA7438	MCS SOFAC L/R	IC7540	N8	Digital Audio Module
58	TDA7438	MCS SOFAC L/R	IC7600	N9	Digital Audio Module
59	TDA7438	MCS SOFAC L/R	IC7570	N10	Digital Audio Module
61	PCF8574	MCS I/O expander	IC7690	N16	Digital Audio Module
63	TDA8444	Auto Scavem DAC	IC7500	SC1	Auto Scavem
65	Slow I2C bus blocked		See fig 5.8	Slow I2C bus blocked	
66	Fast I2C bus blocked		See fig 5.8	Fast I2C bus blocked	
67	Supply 5V	5V2	See fig 5.8	+5V Supply	
68	Supply 8V	8V6	See fig 5.8	+8V Supply	
70	V fail protection	VFB	See fig 5.11	A3/A1/K6	Vertical Flyback
71	H fail protection	HFB	See fig 5.10	A1/K6	Horizontal Flyback
73	Line Deflection protection	LDP	See fig 5.8	A1/K6	Line Deflection
74	Beam Current Protection	BC-PROT	See fig 5.8	K6/K7	Beam Current
76	DC Sound protection	DC-PROT	See fig 5.8	A4	Sound Output
77	Feature box protection	FBX-PROT	See fig 5.8	L1	+3V (FBX) Supply
80	Tuner protection	Tuner-PROT	See fig 5.8	K1	+8V (Tuner) Supply

5.6 Protections

5.6.1 Introduction

This chassis has only one microprocessor (OTC), which remains active during Standby. This because the power of the microprocessor (and the attached memory chip set) is coming from the 3V3 supply, which is derived from the 5V Standby circuitry.
Therefore, in both 'Power on' as in 'Standby' mode, the microprocessor is connected to this power supply. The microprocessor controls the Standby line for switching 'on' and 'off' the main supply. In the Standby mode, or in the protection mode, the Standby line will open the contacts of relay 1002 via T7000, which results in switching 'off' the mains input to the main supply. In the mean time, via T7550, the LED-intensity of the opto-coupler will increase, which results in a quick shutdown of the power supply.
If a fault situation is detected, an error code is generated and, if necessary, the set is put in protection mode. This mode is indicated by blinking of the red front LED.

Protection Structure


3V3
St-by
NVM
5V2
ST24E32 (2)
I2C3
Slow bus (65)
Tuner (5)
I/O video (10)
I/O audio (11)
FDS/UV1316 (35)
FDS/PCF8574 (36)
FDS/Popov (37)
FDS/HIP2 (38)
FDS/NVM (39)
Surround Trnsm_uP (40)
FDS/Headphone (41)
OTC (3)
St-by
I2C-S
113
104
1050
IR
Mainswitch
Mains
5Vst-by
6570
St-by
5Vst-by
3V3
7021
+5Vst-by
7050
IR
6052
(67)
5V2
8V6
(68)
Fast bus (66)
HIP (15)
HOP (20)
ITT (25)
SOUND PROC (26)
PICNIC (50)
MCS processor (56)
MCS/Sofac1 (57)
MCS/Sofac2 (58)
MCS/Sofac3 (59)
MCS/PCF8574 (61)
PROT/FBX (77)
PROT/Tuner (80)
5V2
I2C-F
DC prot (76)
FBCSO
BC (74)
BC info
6571
AUDIO
7000/7001
7200
7250
FFS
8V6
5V2
±(16V)
green
red
6051
140V
33V
tuner
7351
6350 27V
8V6
7438
7341
6341 33V
1V
7484
E/W
EHT info
Hor. defl.
HFB
200V
EHT
FIL
-13V
+13V
-15V
Vert. defl.
VFB
PICNIC local bus
Falconic (53)
Eagle (54)
RGB
I2C
Video control
FBSCO
HOP (20)
LDP (73)
HFB (71)
DEFLECTION
VFB (70)
6758

CL 16532149_074.eps
211201

Figure 5-8

We can divide the protections in four groups:

- Protection from I^{2}C-busses (fast and slow) or I^{2}C-IC errors (device errors).
- Protection from the inputs on the OTC.
- Protection from the status register of the HOP (communicated via I^{2}C-bus).
- DC-protection (from the sound amplifiers) monitored on the OTC.

5.6.2 Protection from the I^{2}C Bus

In normal operation, some registers of the I^{2}C controlled ICs are refreshed every 200 ms. During this sequence, three I^{2}C-busses (and the I^{2}C-ICs as well) are checked.

Possible protections:

- An I^{2}C-bus protection will take place if the SDA and SCL are whether short-circuited to ground or to each other.
- An I^{2}C-device protection can occur, when there is malfunction in communication with one specific device, or if the power supply of the device is missing.
- A FBX- and/or Tuner circuitry protection can occur, when one of these circuits do not respond for more than 1 second (measured via I^{2}C). The set goes in protection mode.

5.6.3 Protection from the Inputs on the OTC

If a protection is detected at an input of the OTC, all protection inputs of the OTC will be scanned every 200 milliseconds for five times. If the protection on one of the inputs is still activated after 1 sec., then the set will be put in the protection-mode. Before the scanning is started, a so-called ‘ESD refresh’ is carried out. This is done, because the interrupt on one of the inputs might be caused by a Flash or ESD. As both phenomena can harm the settings of some ICs, they are initialised again to ensure the normal picture and sound conditions of the set.

8V6 and 5V2 Protection.
The OTC senses the presence of the 8V6 and 5V2. If the 8V6 and 5V2 is not present, then an error code is stored in the error buffer.

BC (Beam Current) Protection.
A circuit on the SSP measures the beam current. If this current exceeds a certain reference level, the BC-input of the OTC is set to ‘high’ via D6350 and T7351. The error code is stored in the error buffer and the set is put in protection mode.

DC Protection.

Speaker Protection

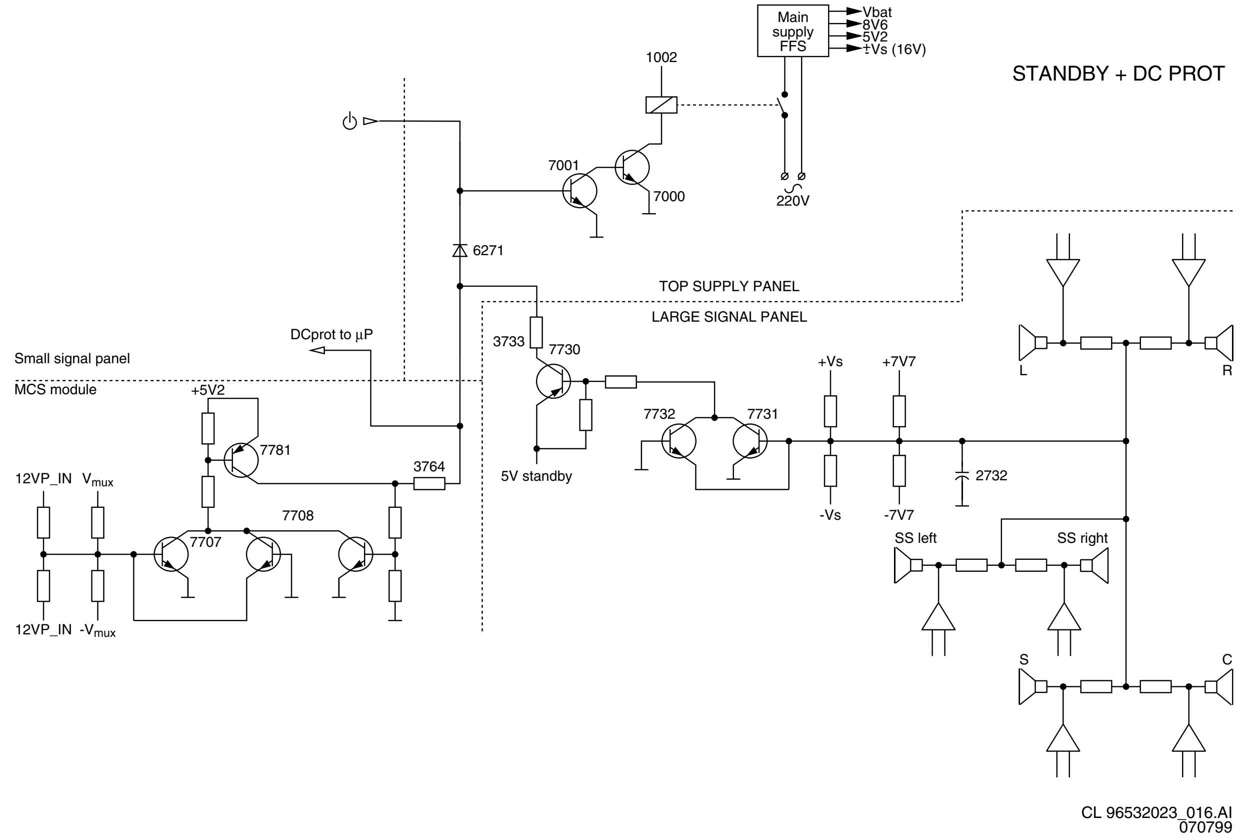

Main supply FFS
Vbat
8V6
5V2
±Vs (16V)
1002
STANDBY + DC PROT
7001
7000
220V
6271
TOP SUPPLY PANEL
LARGE SIGNAL PANEL
DCprot to µP
3733
7730
Small signal panel
MCS module
+5V2
7781
3764
5V standby
7732
7731
+Vs
+7V7
-Vs
-7V7
2732
L
R
12VP_IN Vmux
7708
7707
12VP_IN -Vmux
SS left
SS right
S
C
CL 96532023_016.AI
070799

Figure 5-9

This is an important protection, measured by a circuitry on the LSP. The output of the protection circuit will slow down the power supply immediately via the opto-coupler. Then, via relay 1002, the supply is set to Standby-mode at once. To be able to store the error code in the error buffer, the protection signals are also wired to the OTC. The protection is activated in case of:

- Unbalance between $+V_S$ and $-V_S$.
- Unbalance between +7V7 and -7V7.
- V_{DC} on one of the audio amplifier outputs.
- Unbalance in the supplies of the MCS-module.

5.6.4 Protections from the Status Register of the HOP

Every 200 milliseconds the status register of the HOP is read by the OTC via I^2C. If a protection signal is detected on one of the inputs of the HOP, then the relevant error bit in the HOP register is set to 'high'. If the error bit is still 'high' after 1 s., the OTC will store the error code in the error buffer and depending on the relevancy of the error bit the set will either go into the protection-mode or not.

HFB: Horizontal Flyback

HFB Protection

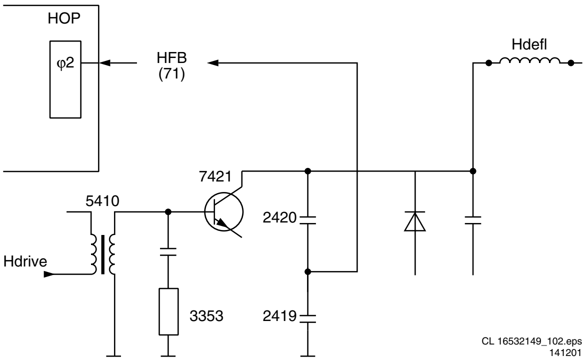
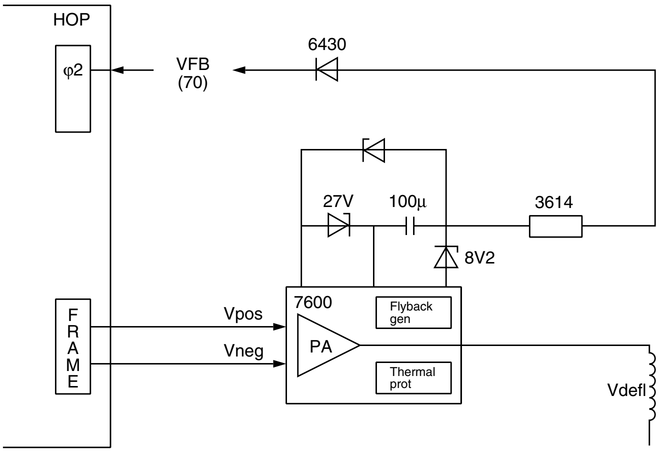

HOP
φ2
HFB
(71)
Hdefl
7421
5410
2420
Hdrive
3353
2419
CL 16532149_102.eps
141201

Figure 5-10

If the horizontal flyback is not present, then this is detected via the HOP. One status bit is set to 'high'. The error code is stored in the error buffer and the set will go into the protection mode

VFB: Vertical Flyback

VFB Protection



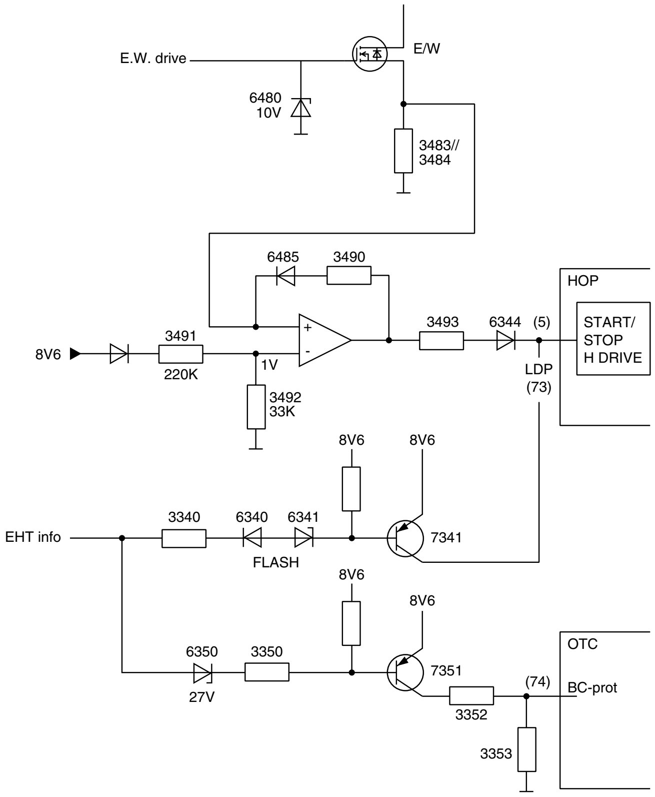
CL 16532149_103.eps
141201

Figure 5-11

The HOP will blank the screen, if the vertical flyback signals are not present at the VFB-guard input .The relevant status bit will be set in the register of the HOP. The error code is stored in the error buffer; in this case, protection is not necessary.

LDP: Line Deflection Protection

LDP Protection



CL 86532092_013.eps
031198

Figure 5-12

Two protection circuits are connected to the LDP-input of the HOP:

- **Flash detection.**
  From the EHT-info, via D6341 and T7341 a flash will stop the H-drive and line output stage immediately. The FLS-bit in the status register of the HOP is set to 'high'. As the duration of a flash is very short, the FLS-bit will be reset to 'low' again after the flash refresh, and via a slow start the set will start again.
- **LDP detection.**
  The EW-protection, coming from the line-output is also connected to the same input as above. The current through the EW-stage is measured by R3483 and R3484 on the LSP. The voltage across these precision resistors will increase in case of a failure at the line output stage. If the voltage becomes higher than 1 V, then the output of IC7484 will become 'high' and remains 'high' via D6485 and R3490. Via D6344 the H-drive will be stopped. The FLS-bit will be set to 'high' and remains 'high' by means of the software filtering even after a flash refresh. The OTC will put the set in Standby-mode. The error code is stored in the error buffer and the set gets into the protection mode.

5.7 Repair/Service Tips

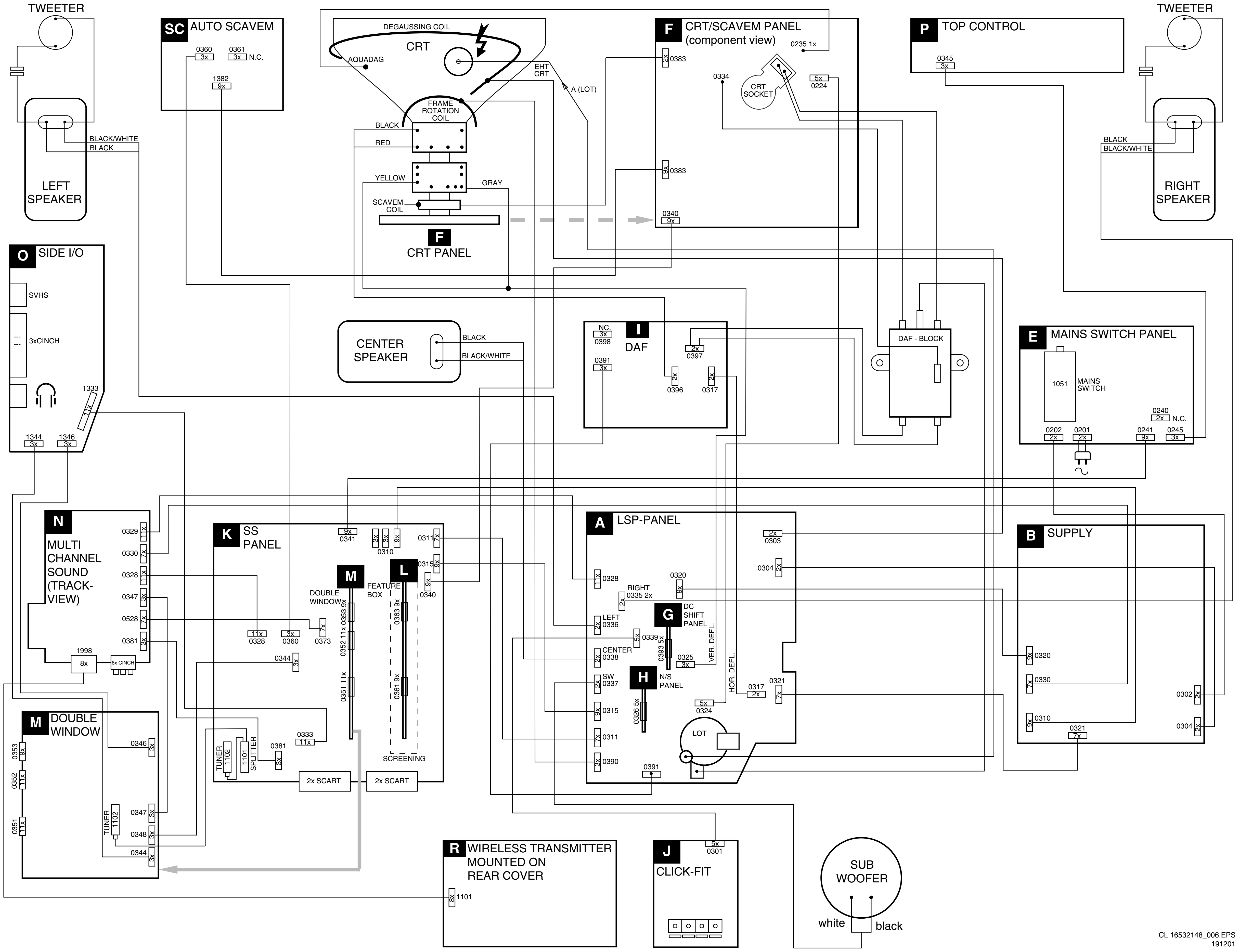
Below, you will find some additional repair/service tips:

- To have a good **service position of the FDS module**, remove the FBX module. As the set will go in protection now, you have to overrule this. Therefore, go to the Service Default Mode via the HW-entry method (short jumpers on SSP). There will be no picture, but as the signal processing of the FDS-module is done **before** the FBX processing, you can measure the necessary waveforms, and check if the module is functioning.
- To have a good **service position of the FBX module**, remove the FDS module. To keep the set functioning, you have to bypass the YUV-path now: short pins 1-7, 2-8, and 3-9 of connector 0352.
- More **User Service Tips** are described in chapter 3 of this manual (page 34 of the DFU).
- Be aware that when you switch 'off' the TV-set, the active surround speaker is going to standby after about 10 minutes.
- In Pixel Plus mode, the **OSD menus** are a little different in size. This is normal.
- When one wants to **store settings of the FDS module**, first one has to make a hardware intervention (see explanation on diagram M1). This is because of the fact that the local NVM has a write protection that is not controlled by the main microprocessor. Be sure to remove the connection after storing.
- When the set has a **'hazy' focus**, this can be related to a bad focus setting, but can also be related to a malfunctioning of the parabola modulation part of the Auto Scavem circuitry (see diagram SC).
- An easy indication if the **'Pixel Plus' feature is functioning correctly**, is via the 'Pixel Plus Demo Mode'. To activate this, press the 'Pixel Plus' button on the RC-transmitter (see also DFU).
- When **no wireless sound** is possible, or when there is too much interference, you can still enjoy Dolby surround sound by connecting the two rear loudspeakers to the TV with a stereo cinch to stereo 3.5 mm jack cable. This cable can be ordered as service part nr. 3104 311 02251 (10 m. backup cable).

Personal Notes:

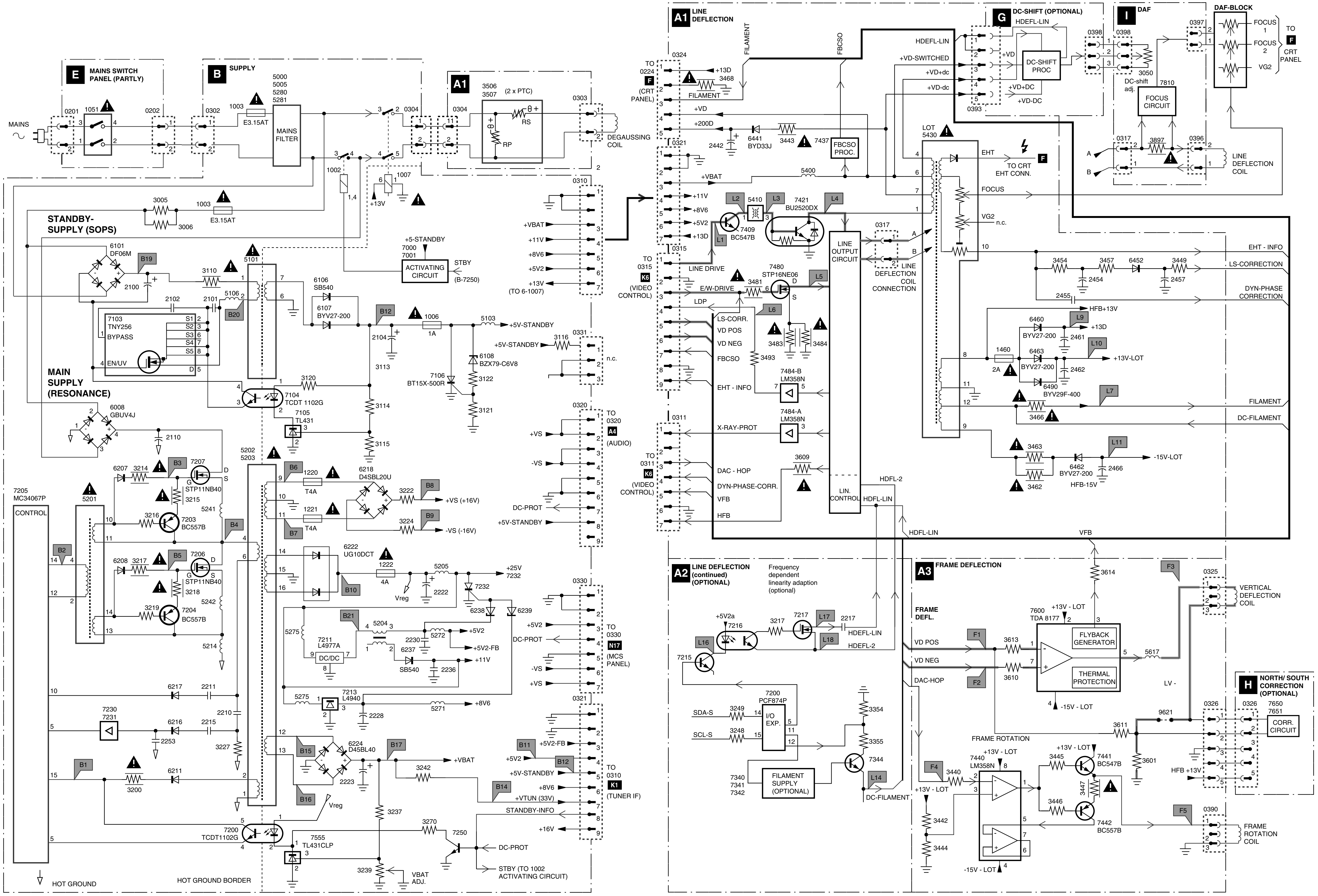
6. Wiring Diagram, Block Diagrams and Overviews

Wiring Diagram


TWEETER
BLACK/WHITE
BLACK
LEFT SPEAKER
SC AUTO SCAVEM
0360 3x
0361 3x N.C.
1382 9x
DEGAUSSING COIL
CRT
AQUADAG
EHT CRT
A (LOT)
FRAME ROTATION COIL
BLACK
RED
YELLOW
GRAY
SCAVEM COIL
F CRT PANEL
F CRT/SCAVEM PANEL (component view)
0235 1x
2x 0383
0334
CRT SOCKET
5x 0224
9x 0383
0340 9x
P TOP CONTROL
0345 3x
TWEETER
BLACK
BLACK/WHITE
RIGHT SPEAKER
O SIDE I/O
SVHS
3xCINCH
1333 1x
1344 3x
1346 3x
CENTER SPEAKER
BLACK
BLACK/WHITE
NC 3x 0398
I DAF
0391 3x
2x 0397
2x 0396
2x 0317
DAF - BLOCK
E MAINS SWITCH PANEL
1051 MAINS SWITCH
0240 2x N.C.
0202 2x
0201 2x
0241 9x
0245 3x
N MULTI CHANNEL SOUND (TRACK-VIEW)
0329 1x
0330 7x
0328 11x
0347 3x
0528 7x
0381 3x
1998 8x
6x CINCH
K SS PANEL
9x 0341
3x 3x 9x 0310
0311 7x
0315 9x
9x 0340
M DOUBLE WINDOW
L FEATURE BOX
0353 9x
0352 11x
0351 11x
0363 9x
0361 9x
11x 0328
3x 0360
7x 0373
0344 3x
TUNER 1102
SPLITTER 1101
0381 3x
0333 11x
SCREENING
2x SCART
2x SCART
A LSP-PANEL
2x 0303
0304 2x
11x 0328
RIGHT 0335 2x
0320 9x
2x LEFT 0336
G DC SHIFT PANEL
5x 0339
0393 5x
VER. DEFL.
2x CENTER 0338
0325 3x
2x SW 0337
H N/S PANEL
HOR. DEFL.
0317 2x
0321 7x
5x 0324
9x 0315
0326 5x
7x 0311
LOT
3x 0390
0391
B SUPPLY
9x 0320
7x 0330
9x 0310
0321 7x
0302 2x
0304 2x
M DOUBLE WINDOW
0353 9x
0352 11x
0351 11x
0346 3x
TUNER 1102
0347 3x
0348 3x
0344 3x
R WIRELESS TRANSMITTER MOUNTED ON REAR COVER
8x 1101
J CLICK-FIT
5x 0301
SUB WOOFER
white
black

CL 16532148_006.EPS
191201

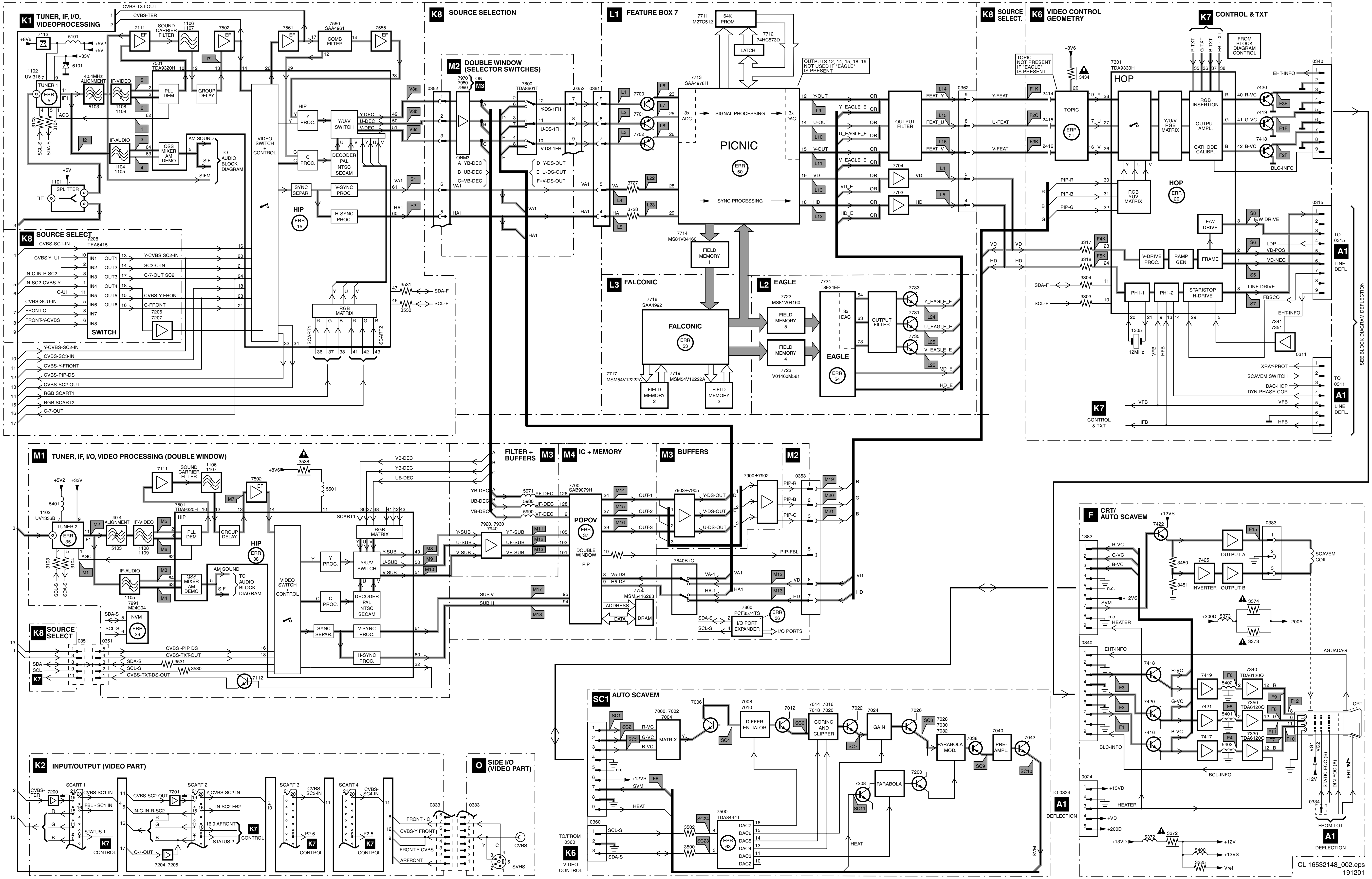
Block Diagram Supply and Deflection



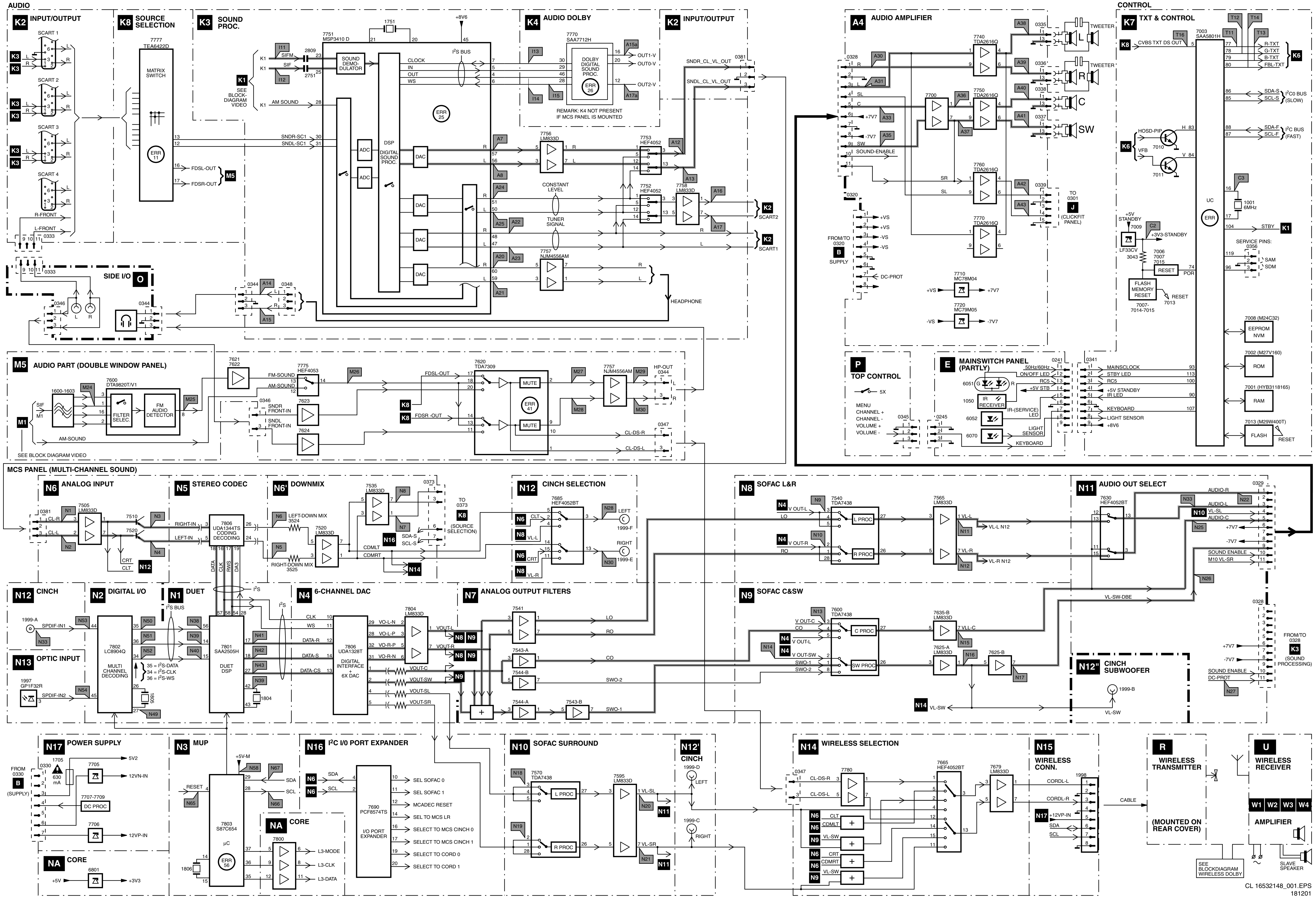
E MAINS SWITCH PANEL (PARTLY)
B SUPPLY
A1
MAINS
1051
1003
E3.15AT
MAINS FILTER
5000
5005
5280
5281
3506
3507
(2 x PTC)
RS
RP
DEGAUSSING COIL
STANDBY-SUPPLY (SOPS)
3005
3006
6101 DF06M
7103 TNY256
BYPASS
EN/UV
MAIN SUPPLY (RESONANCE)
6008 GBUV4J
7104 TCDT 1102G
7105 TL431
+5-STANDBY
7000
7001
ACTIVATING CIRCUIT
STBY (B-7250)
6106 SB540
6107 BYV27-200
1006 1A
5103
7106 BT15X-500R
6108 BZX79-C6V8
7205 MC34067P
CONTROL
7207 STP11NB40
7203 BC557B
7206 STP11NB40
7204 BC557B
6218 D4SBL20U
+VS (+16V)
-VS (-16V)
6222 UG10DCT
+25V 7232
Vreg
7211 L4977A
DC/DC
+5V2
+5V2-FB
+11V
7213 L4940
+8V6
6224 D45BL40
+VBAT
7200 TCDT1102G
7555 TL431CLP
7250
DC-PROT
STBY (TO 1002 ACTIVATING CIRCUIT)
VBAT ADJ.
HOT GROUND
HOT GROUND BORDER
TO 0224 F (CRT PANEL)
TO 0315 K6 (VIDEO CONTROL)
TO 0311 K6 (VIDEO CONTROL)
TO 0320 A4 (AUDIO)
TO 0330 N17 (MCS PANEL)
TO 0310 K1 (TUNER IF)
STANDBY-INFO
+VTUN (33V)
+16V
A1 LINE DEFLECTION
FILAMENT
FBCSO
FBCSO PROC.
6441 BYD33J
7409 BC547B
7421 BU2520DX
LINE OUTPUT CIRCUIT
LINE DRIVE
E/W-DRIVE
7480 STP16NE06
LDP
LS-CORR.
VD POS
VD NEG
EHT - INFO
X-RAY-PROT
7484-B LM358N
7484-A LM358N
DAC - HOP
DYN-PHASE-CORR.
VFB
HFB
LIN. CONTROL
HDFL-LIN
HDFL-2
LINE DEFLECTION COIL CONNECTION
LOT 5430
EHT
TO CRT EHT CONN.
FOCUS
VG2
EHT - INFO
LS-CORRECTION
DYN-PHASE CORRECTION
HFB+13V
+13D
+13V-LOT
FILAMENT
DC-FILAMENT
-15V-LOT
HFB-15V
G DC-SHIFT (OPTIONAL)
DC-SHIFT PROC
I DAF
FOCUS CIRCUIT
DAF-BLOCK
FOCUS 1
FOCUS 2
VG2
TO F CRT PANEL
LINE DEFLECTION COIL
A2 LINE DEFLECTION (continued) (OPTIONAL)
Frequency dependent linearity adaption (optional)
7216
7217
7215
7200 PCF874P
I/O EXP.
SDA-S
SCL-S
FILAMENT SUPPLY (OPTIONAL)
7340 7341 7342
7344
A3 FRAME DEFLECTION
FRAME DEFL.
DAC-HOP
7600 TDA 8177
FLYBACK GENERATOR
THERMAL PROTECTION
VERTICAL DEFLECTION COIL
FRAME ROTATION
7440 LM358N
7441 BC547B
7442 BC557B
FRAME ROTATION COIL
H NORTH/ SOUTH CORRECTION (OPTIONAL)
7650 7651
CORR. CIRCUIT

CL 16532148_003.eps
201201

Block Diagram Video

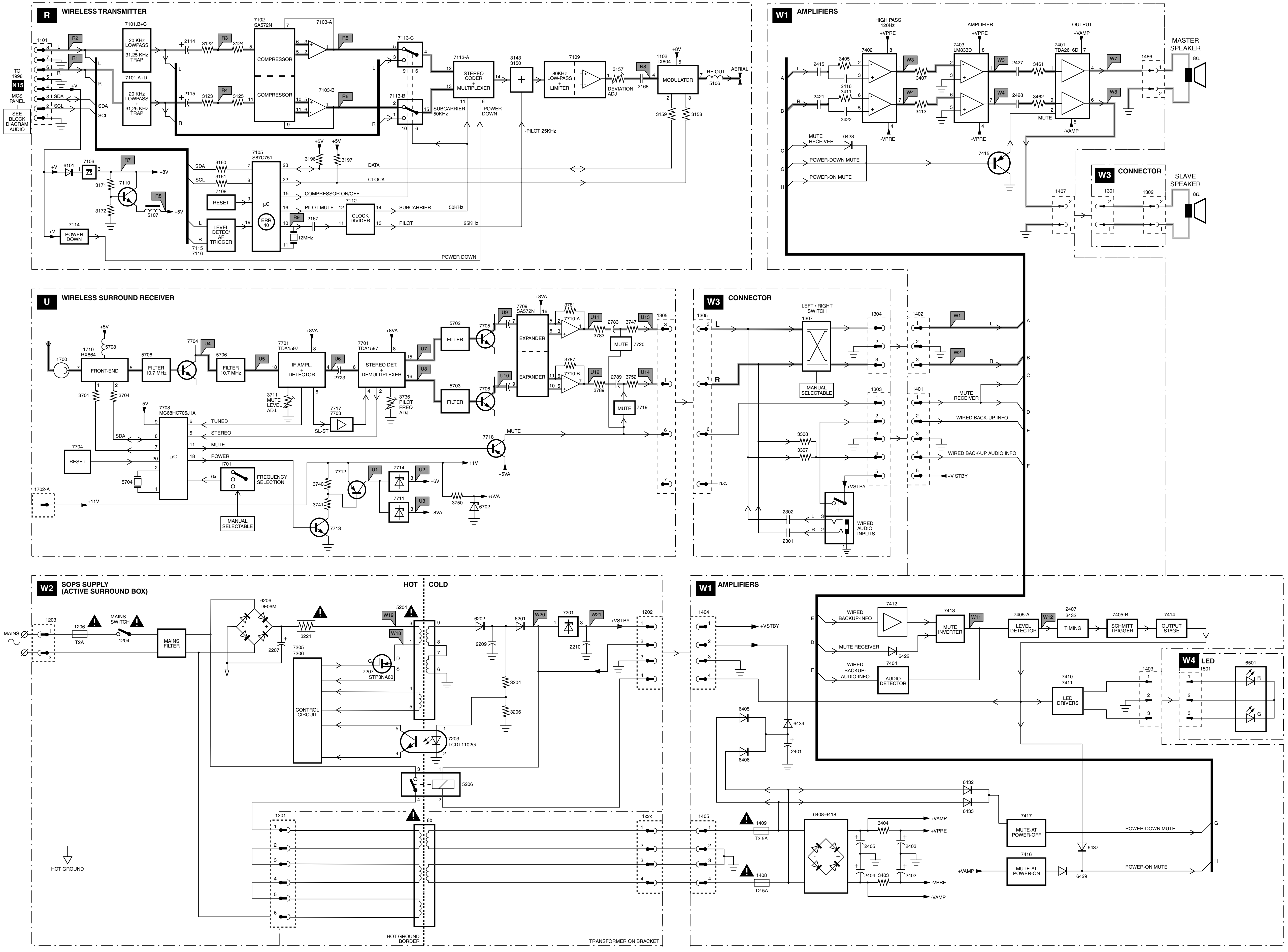

K1 TUNER, IF, I/O, VIDEOPROCESSING
TUNER 1
UV1316
SPLITTER
40.4MHz ALIGNMENT
IF-VIDEO
IF-AUDIO
SOUND CARRIER FILTER
PLL DEM
GROUP DELAY
QSS MIXER AM DEMO
AM SOUND
TO AUDIO BLOCK DIAGRAM
7501 TDA9320H
7560 SAA4961
COMB FILTER
VIDEO SWITCH + CONTROL
Y PROC.
Y/U/V SWITCH
C PROC.
DECODER PAL NTSC SECAM
SYNC SEPAR.
V-SYNC PROC.
H-SYNC PROC.
HIP
ERR 15
RGB MATRIX
SCART1
SCART2
K8 SOURCE SELECT
7208 TEA6415
SWITCH
K8 SOURCE SELECTION
M2 DOUBLE WINDOW (SELECTOR SWITCHES)
ONM3
A=YB-DEC
B=UB-DEC
C=VB-DEC
D=Y-DS-OUT
E=U-DS-OUT
F=V-DS-OUT
7800 TDA8601T
L1 FEATURE BOX 7
7711 M27C512
64K PROM
LATCH
7712 74HC573D
OUTPUTS 12, 14, 15, 18, 19 NOT USED IF "EAGLE" IS PRESENT
7713 SAA4978H
PICNIC
ERR 50
SIGNAL PROCESSING
SYNC PROCESSING
3x ADC
3x DAC
OUTPUT FILTER
7714 MS81V04160
FIELD MEMORY 1
L3 FALCONIC
7718 SAA4992
FALCONIC
ERR 53
7717 MSM54V12222A
7719 MSM54V12222A
FIELD MEMORY 2
L2 EAGLE
7722 MS81V04160
FIELD MEMORY 5
FIELD MEMORY 4
7723 V01460M581
7724 T8F24EF
EAGLE
ERR 54
K8 SOURCE SELECT.
K6 VIDEO CONTROL GEOMETRY
TOPIC NOT PRESENT IF "EAGLE" IS PRESENT
TOPIC
ERR 21
7301 TDA9330H
HOP
ERR 20
Y/U/V RGB MATRIX
RGB YUV MATRIX
RGB INSERTION
OUTPUT AMPL.
CATHODE CALIBR.
E/W DRIVE
V-DRIVE PROC.
RAMP GEN
FRAME
PH1-1
PH1-2
STARISTOP H-DRIVE
12MHz
K7 CONTROL & TXT
FROM BLOCK DIAGRAM CONTROL
TO 0315 A1 LINE DEFL
TO 0311 A1 LINE DEFL.
K7 CONTROL & TXT
SEE BLOCK DIAGRAM DEFLECTION
M1 TUNER, IF, I/O, VIDEO PROCESSING (DOUBLE WINDOW)
TUNER 2
UV1336B
ERR 35
7501 TDA9320H
HIP
ERR 38
7991 M24C04
NVM
ERR 39
K8 SOURCE SELECT
K7
FILTER + BUFFERS M3
M4 IC + MEMORY
7700 SAB9079H
POPOV
ERR 37
DOUBLE WINDOW + PIP
7750 MSM5416283
DRAM
M3 BUFFERS
7903÷7905
7840B+C
7860 PCF8574TS
I/O PORT EXPANDER
ERR 36
I/O PORTS
M2
F CRT/ AUTO SCAVEM
OUTPUT A
OUTPUT B
INVERTER
SCAVEM COIL
7340 TDA6120Q
7350 TDA6120Q
7330 TDA6120Q
CRT
AGUADAG
FROM LOT A1 DEFLECTION
SC1 AUTO SCAVEM
MATRIX
DIFFER ENTIATOR
CORING AND CLIPPER
GAIN
PARABOLA MOD.
PRE-AMPL.
PARABOLA
7500 TDA8444T
ERR 63
TO/FROM 0360 K6 VIDEO CONTROL
TO 0324 A1 DEFLECTION
K2 INPUT/OUTPUT (VIDEO PART)
SCART 1
SCART 2
SCART 3
SCART 4
K7 CONTROL
O SIDE I/O (VIDEO PART)
CVBS
SVHS
CL 16532148_002.eps
191201

Block Diagram Audio 1 (Exclusive Wireless Audio Details)


AUDIO
K2 INPUT/OUTPUT
SCART 1
SCART 2
SCART 3
SCART 4
R-FRONT
L-FRONT
0333
K8 SOURCE SELECTION
7777 TEA6422D
MATRIX SWITCH
ERR 11
FDSL-OUT
FDSR-OUT
M5
K3 SOUND PROC.
7751 MSP3410 D
1751
+8V6
SIFM
SIF
2809
2751
SOUND DEMO-DULATOR
AM SOUND
SEE BLOCK-DIAGRAM VIDEO
SNDR-SC1
SNDL-SC1
ADC
DSP DIGITAL SOUND PROC.
DAC
I²S BUS
CLOCK
IN
OUT
WS
ERR 25
K4 AUDIO DOLBY
7770 SAA7712H
DOLBY DIGITAL SOUND PROC.
ERR 26
OUT1-V
OUT0-V
OUT2-V
REMARK: K4 NOT PRESENT IF MCS PANEL IS MOUNTED
K2 INPUT/OUTPUT
SNDR_CL_VL_OUT
SNDL_CL_VL_OUT
0381
7756 LM833D
7753 HEF4052
7752 HEF4052
7758 LM833D
CONSTANT LEVEL
TUNER SIGNAL
7757 NJM4556AM
SCART2
SCART1
HEADPHONE
SIDE I/O
O
0346
0344
0348
A4 AUDIO AMPLIFIER
0328
SOUND-ENABLE
7740 TDA2616Q
7750 TDA2616Q
7760 TDA2616Q
7770 TDA2616Q
7700
TWEETER
L
R
C
SW
0335
0336
0338
0337
0339
TO 0301
J
(CLICKFIT PANEL)
0320
FROM/TO 0320
B
SUPPLY
+VS
-VS
DC-PROT
7710 MC78M04
7720 MC79M05
+7V7
-7V7
CONTROL
K7 TXT & CONTROL
7003 SAA5801H
CVBS TXT DS OUT
R-TXT
G-TXT
B-TXT
FBL-TXT
K6
SDA-S
SCL-S
I²C0 BUS (SLOW)
SDA-F
SCL-F
I²C BUS (FAST)
HOSD-PIP
VFB
7010
7011
UC
ERR
1001 6MHz
STBY
K1
SERVICE PINS: 0356
SAM
SDM
+5V STANDBY
7009
LF33CV
+3V3-STANDBY
7006 7007 7015
RESET
POR
FLASH MEMORY RESET
7007-7014-7015
7013
7008 (M24C32)
EEPROM NVM
7002 (M27V160)
ROM
7001 (HYB3118165)
RAM
7013 (M29W400T)
FLASH
M5 AUDIO PART (DOUBLE WINDOW PANEL)
1600-1603
7600 DTA9820T/V1
FILTER SELEC.
FM AUDIO DETECTOR
SIF
M1
AM-SOUND
SEE BLOCK DIAGRAM VIDEO
7621 7622
7775 HEF4053
FM-SOUND
AM-SOUND
7623
7624
SNDR FRONT-IN
SNDL FRONT-IN
FDSL-OUT
FDSR-OUT
7620 TDA7309
MUTE
ERR 41
7757 NJM4556AM
HP-OUT 0344
0347
CL-DS-R
CL-DS-L
P TOP CONTROL
MENU
CHANNEL +
CHANNEL -
VOLUME +
VOLUME -
0345
0245
E MAINSWITCH PANEL (PARTLY)
0241
0341
50Hz/60Hz
ON/OFF LED
RC5
+5V STB
IR RECEIVER
IR-(SERVICE) LED
LIGHT SENSOR
KEYBOARD
MAINSCLOCK
STBY LED
IR LED
LIGHT SENSOR
+8V6
MCS PANEL (MULTI-CHANNEL SOUND)
N6 ANALOG INPUT
7505 LM833D
7510
7520
CL-R
CL-L
CRT
CLT
N5 STEREO CODEC
7806 UDA1344TS CODING DECODING
RIGHT-IN
LEFT-IN
N6' DOWNMIX
7535 LM833D
LEFT-DOWN MIX 3524
7520 LM833D
RIGHT-DOWN MIX 3525
CDMLT
CDMRT
SDA-S
SCL-S
TO 0373
(SOURCE SELECTION)
N12 CINCH SELECTION
7685 HEF4052BT
LEFT 1999-F
RIGHT 1999-E
N8 SOFAC L&R
7540 TDA7438
L PROC
R PROC
7565 LM833D
VL-L N12
VL-R N12
N11 AUDIO OUT SELECT
7630 HEF4052BT
AUDIO-R
AUDIO-L
VL-SL
AUDIO-C
SOUND ENABLE
M10 VL-SR
0329
N12 CINCH
1999-A
SPDIF-IN1
N13 OPTIC INPUT
1997 GP1F32R
SPDIF-IN2
N2 DIGITAL I/O
7802 LC8904Q MULTI CHANNEL DECODING
35 = I²S-DATA
34 = I²S-CLK
36 = I²S-WS
N1 DUET
I²S BUS
7801 SAA2505H DUET DSP
1804
1805
N4 6-CHANNEL DAC
CLK
WS
DATA-R
DATA-S
DATA-CS
7806 UDA1328T DIGITAL INTERFACE + 6X DAC
7804 LM833D
VO-L-N
VO-L-P
VO-R-P
VO-R-N
VOUT-C
VOUT-SW
VOUT-SL
VOUT-SR
N7 ANALOG OUTPUT FILTERS
7541
7543-A
7544-B
7544-A
7543-B
LO
RO
CO
SWO-2
SWO-1
N9 SOFAC C&SW
7600 TDA7438
C PROC
SW PROC
7635-B LM833D
7625-A LM833D
7625-B
VLL-C
VL-SW-DBE
0328
FROM/TO 0328
K3
(SOUND PROCESSING)
DC-PROT
N12'' CINCH SUBWOOFER
1999-B
VL-SW
N17 POWER SUPPLY
FROM 0330
(SUPPLY)
1705
630 mA
7705
7707-7709
DC PROC
7706
5V2
12VN-IN
12VP-IN
NA CORE
6801
+5V
+3V3
N3 MUP
+5V-M
RESET
7803 S87C654
µC
ERR 56
1806
SDA
SCL
NA CORE
7800
L3-MODE
L3-CLK
L3-DATA
N16 I²C I/0 PORT EXPANDER
7690 PCF8574TS I/O PORT EXPANDER
SEL SOFAC 0
SEL SOFAC 1
MCADEC RESET
SEL TO MCS LR
SELECT TO MCS CINCH 0
SELECT TO MCS CINCH 1
SELECT TO CORD 0
SELECT TO CORD 1
N10 SOFAC SURROUND
7570 TDA7438
L PROC
R PROC
7595 LM833D
VL-SL
VL-SR
N12' CINCH
1999-D LEFT
1999-C RIGHT
N14 WIRELESS SELECTION
0347
7780
CL-DS-R
CL-DS-L
7665 HEF4052BT
7679 LM833D
CLT
CDMLT
VL-SW
CRT
CDMRT
N15 WIRELESS CONN.
1998
CORDL-L
CORDL-R
12VP-IN
CABLE
R WIRELESS TRANSMITTER
(MOUNTED ON REAR COVER)
U WIRELESS RECEIVER
W1 W2 W3 W4
AMPLIFIER
SEE BLOCKDIAGRAM WIRELESS DOLBY
SLAVE SPEAKER

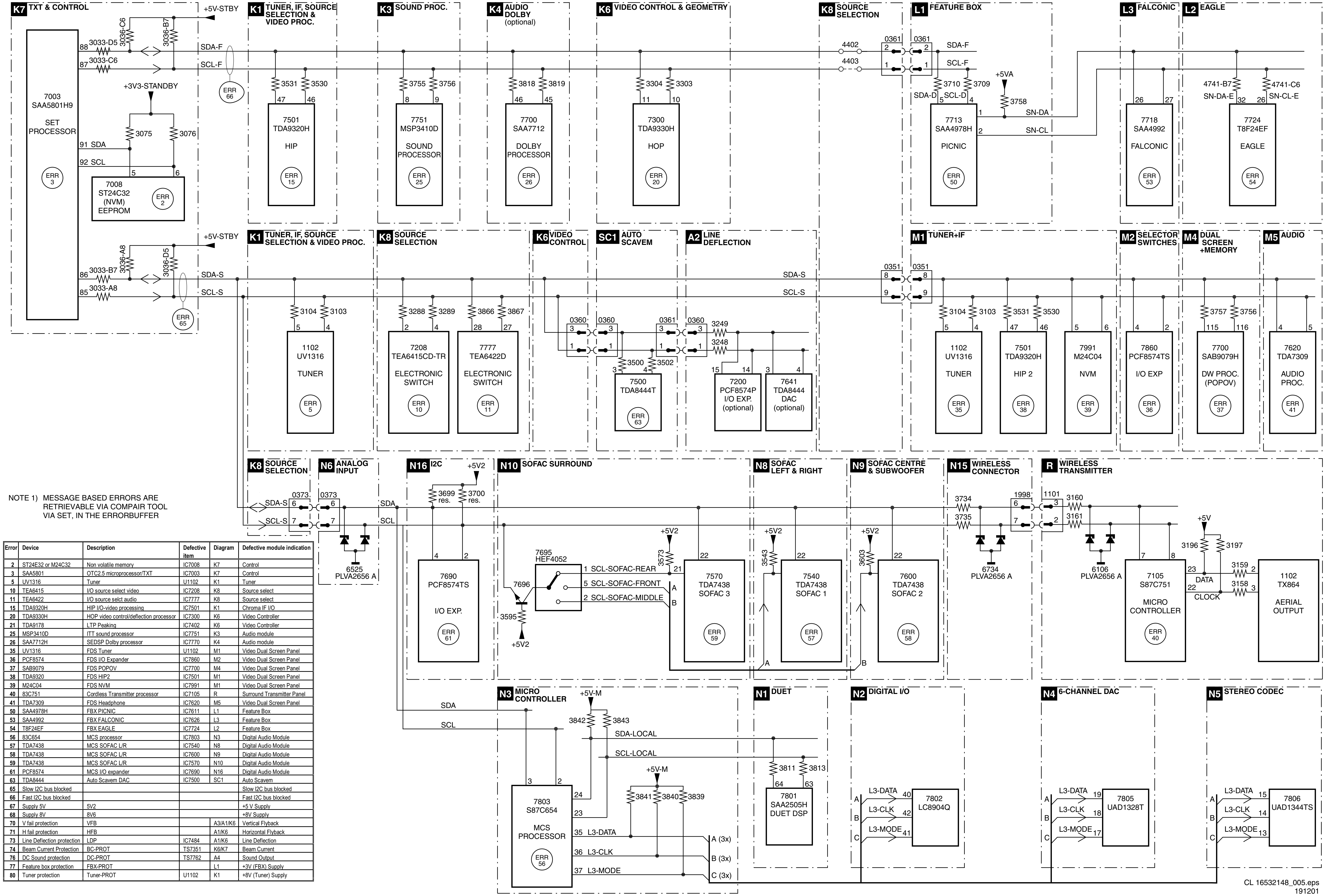
CL 16532148_001.EPS
181201

Block Diagram Audio 2 (Wireless Audio Details)


R WIRELESS TRANSMITTER
TO 1998
N15
MCS PANEL
SEE BLOCK DIAGRAM AUDIO
20 KHz LOWPASS + 31,25 KHz TRAP
COMPRESSOR
STEREO CODER + MULTIPLEXER
80KHz LOW-PASS + LIMITER
DEVIATION ADJ
MODULATOR
RF-OUT
AERIAL
SUBCARRIER 50KHz
-POWER DOWN
-PILOT 25KHz
RESET
LEVEL DETEC/ AF TRIGGER
POWER DOWN
µC
ERR 40
CLOCK DIVIDER
DATA
CLOCK
COMPRESSOR ON/OFF
PILOT MUTE
SUBCARRIER 50KHz
PILOT 25KHz
12MHz
W1 AMPLIFIERS
HIGH PASS 120Hz
AMPLIFIER
OUTPUT
MASTER SPEAKER
SLAVE SPEAKER
MUTE RECEIVER
POWER-DOWN MUTE
POWER-ON MUTE
W3 CONNECTOR
U WIRELESS SURROUND RECEIVER
FRONT-END
FILTER 10.7 MHz
IF AMPL. + DETECTOR
STEREO DET. + DEMULTIPLEXER
FILTER
EXPANDER
MUTE
MUTE LEVEL ADJ.
PILOT FREQ ADJ.
TUNED
STEREO
MUTE
POWER
RESET
FREQUENCY SELECTION
MANUAL SELECTABLE
W3 CONNECTOR
LEFT / RIGHT SWITCH
MANUAL SELECTABLE
MUTE RECEIVER
WIRED BACK-UP INFO
WIRED BACK-UP AUDIO INFO
+V STBY
WIRED AUDIO INPUTS
W2 SOPS SUPPLY (ACTIVE SURROUND BOX)
HOT
COLD
MAINS
MAINS SWITCH
MAINS FILTER
CONTROL CIRCUIT
HOT GROUND
HOT GROUND BORDER
TRANSFORMER ON BRACKET
W1 AMPLIFIERS
WIRED BACKUP-INFO
MUTE INVERTER
LEVEL DETECTOR
TIMING
SCHMITT TRIGGER
OUTPUT STAGE
MUTE RECEIVER
WIRED BACKUP-AUDIO-INFO
AUDIO DETECTOR
LED DRIVERS
W4 LED
MUTE-AT POWER-OFF
MUTE-AT POWER-ON
POWER-DOWN MUTE
POWER-ON MUTE
+VSTBY
+VAMP
+VPRE
-VPRE
-VAMP

CL 16532148_007.EPS
191201

I^{2}C IC's overview

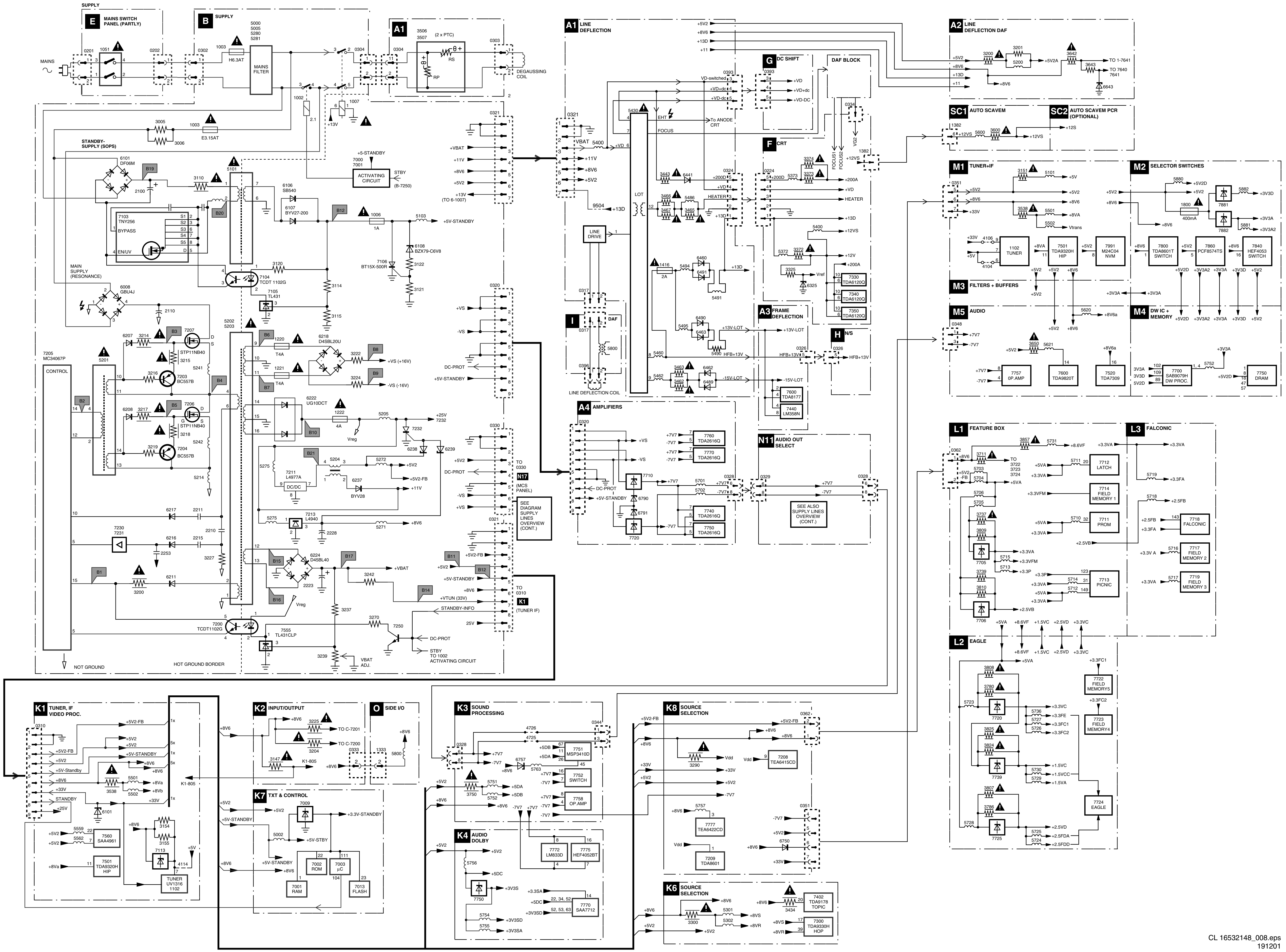

K7 TXT & CONTROL
+5V-STBY
7003
SAA5801H9
SET
PROCESSOR
ERR 3
88 3033-D5
87 3033-C6
3036-C6
3036-B7
SDA-F
SCL-F
ERR 66
+3V3-STANDBY
3075
3076
91 SDA
92 SCL
5
6
7008
ST24C32
(NVM)
EEPROM
ERR 2
+5V-STBY
86 3033-B7
85 3033-A8
3036-A8
3036-D5
SDA-S
SCL-S
ERR 65
K1 TUNER, IF, SOURCE SELECTION & VIDEO PROC.
3531
3530
47
46
7501
TDA9320H
HIP
ERR 15
K3 SOUND PROC.
3755
3756
8
9
7751
MSP3410D
SOUND PROCESSOR
ERR 25
K4 AUDIO DOLBY (optional)
3818
3819
46
45
7700
SAA7712
DOLBY PROCESSOR
ERR 26
K6 VIDEO CONTROL & GEOMETRY
3304
3303
11
10
7300
TDA9330H
HOP
ERR 20
K8 SOURCE SELECTION
4402
4403
0361
L1 FEATURE BOX
SDA-F
SCL-F
+5VA
3710
3709
SDA-D
SCL-D
3758
7713
SAA4978H
PICNIC
ERR 50
SN-DA
SN-CL
L3 FALCONIC
26
27
7718
SAA4992
FALCONIC
ERR 53
L2 EAGLE
4741-B7
4741-C6
SN-DA-E
SN-CL-E
32
26
7724
T8F24EF
EAGLE
ERR 54
K1 TUNER, IF, SOURCE SELECTION & VIDEO PROC.
3104
3103
1102
UV1316
TUNER
ERR 5
K8 SOURCE SELECTION
3288
3289
3866
3867
28
27
7208
TEA6415CD-TR
ELECTRONIC SWITCH
ERR 10
7777
TEA6422D
ELECTRONIC SWITCH
ERR 11
K6 VIDEO CONTROL
0360
SC1 AUTO SCAVEM
3500
3502
7500
TDA8444T
ERR 63
A2 LINE DEFLECTION
0361
3249
3248
15
14
7200
PCF8574P
I/O EXP.
(optional)
7641
TDA8444
DAC
(optional)
0351
M1 TUNER+IF
3104
3103
3531
3530
47
46
1102
UV1316
TUNER
ERR 35
7501
TDA9320H
HIP 2
ERR 38
7991
M24C04
NVM
ERR 39
M2 SELECTOR SWITCHES
7860
PCF8574TS
I/O EXP
ERR 36
M4 DUAL SCREEN +MEMORY
3757
3756
115
116
7700
SAB9079H
DW PROC.
(POPOV)
ERR 37
M5 AUDIO
7620
TDA7309
AUDIO PROC.
ERR 41
K8 SOURCE SELECTION
0373
N6 ANALOG INPUT
6525
PLVA2656 A
N16 I2C
+5V2
3699 res.
3700 res.
7690
PCF8574TS
I/O EXP.
ERR 61
N10 SOFAC SURROUND
7695
HEF4052
7696
3595
+5V2
1 SCL-SOFAC-REAR
5 SCL-SOFAC-FRONT
2 SCL-SOFAC-MIDDLE
3573
7570
TDA7438
SOFAC 3
ERR 59
N8 SOFAC LEFT & RIGHT
3543
7540
TDA7438
SOFAC 1
ERR 57
N9 SOFAC CENTRE & SUBWOOFER
3603
7600
TDA7438
SOFAC 2
ERR 58
N15 WIRELESS CONNECTOR
3734
3735
1998
6734
PLVA2656 A
R WIRELESS TRANSMITTER
1101
3160
3161
6106
PLVA2656 A
+5V
3196
3197
7105
S87C751
MICRO CONTROLLER
ERR 40
3159
3158
DATA
CLOCK
1102
TX864
AERIAL OUTPUT
SDA
SCL
N3 MICRO CONTROLLER
+5V-M
3842
3843
SDA-LOCAL
SCL-LOCAL
3841
3840
3839
7803
S87C654
MCS PROCESSOR
ERR 56
35 L3-DATA
36 L3-CLK
37 L3-MODE
A (3x)
B (3x)
C (3x)
N1 DUET
3811
3813
7801
SAA2505H
DUET DSP
N2 DIGITAL I/O
L3-DATA
L3-CLK
L3-MODE
7802
LC8904Q
N4 6-CHANNEL DAC
7805
UAD1328T
N5 STEREO CODEC
7806
UAD1344TS

NOTE 1) MESSAGE BASED ERRORS ARE RETRIEVABLE VIA COMPAIR TOOL VIA SET, IN THE ERRORBUFFER

Error	Device	Description	Defective item	Diagram	Defective module indication
2	ST24E32 or M24C32	Non volatile memory	IC7008	K7	Control
3	SAA5801	OTC2.5 microprocessor/TXT	IC7003	K7	Control
5	UV1316	Tuner	U1102	K1	Tuner
10	TEA6415	I/O source select video	IC7208	K8	Source select
11	TEA6422	I/O source selct audio	IC7777	K8	Source select
15	TDA9320H	HIP I/O-video processing	IC7501	K1	Chroma IF I/O
20	TDA9330H	HOP video control/deflection processor	IC7300	K6	Video Controller
21	TDA9178	LTP Peaking	IC7402	K6	Video Controller
25	MSP3410D	ITT sound processor	IC7751	K3	Audio module
26	SAA7712H	SEDSP Dolby processor	IC7770	K4	Audio module
35	UV1316	FDS Tuner	U1102	M1	Video Dual Screen Panel
36	PCF8574	FDS I/O Expander	IC7860	M2	Video Dual Screen Panel
37	SAB9079	FDS POPOV	IC7700	M4	Video Dual Screen Panel
38	TDA9320	FDS HIP2	IC7501	M1	Video Dual Screen Panel
39	M24C04	FDS NVM	IC7991	M1	Video Dual Screen Panel
40	83C751	Cordless Transmitter processor	IC7105	R	Surround Transmitter Panel
41	TDA7309	FDS Headphone	IC7620	M5	Video Dual Screen Panel
50	SAA4978H	FBX PICNIC	IC7611	L1	Feature Box
53	SAA4992	FBX FALCONIC	IC7626	L3	Feature Box
54	T8F24EF	FBX EAGLE	IC7724	L2	Feature Box
56	83C654	MCS processor	IC7803	N3	Digital Audio Module
57	TDA7438	MCS SOFAC L/R	IC7540	N8	Digital Audio Module
58	TDA7438	MCS SOFAC L/R	IC7600	N9	Digital Audio Module
59	TDA7438	MCS SOFAC L/R	IC7570	N10	Digital Audio Module
61	PCF8574	MCS I/O expander	IC7690	N16	Digital Audio Module
63	TDA8444	Auto Scavem DAC	IC7500	SC1	Auto Scavem
65	Slow I2C bus blocked				Slow I2C bus blocked
66	Fast I2C bus blocked				Fast I2C bus blocked
67	Supply 5V	5V2			+5 V Supply
68	Supply 8V	8V6			+8V Supply
70	V fail protection	VFB		A3/A1/K6	Vertical Flyback
71	H fail protection	HFB		A1/K6	Horizontal Flyback
73	Line Deflection protection	LDP	IC7484	A1/K6	Line Deflection
74	Beam Current Protection	BC-PROT	TS7351	K6/K7	Beam Current
76	DC Sound protection	DC-PROT	TS7762	A4	Sound Output
77	Feature box protection	FBX-PROT		L1	+3V (FBX) Supply
80	Tuner protection	Tuner-PROT	U1102	K1	+8V (Tuner) Supply

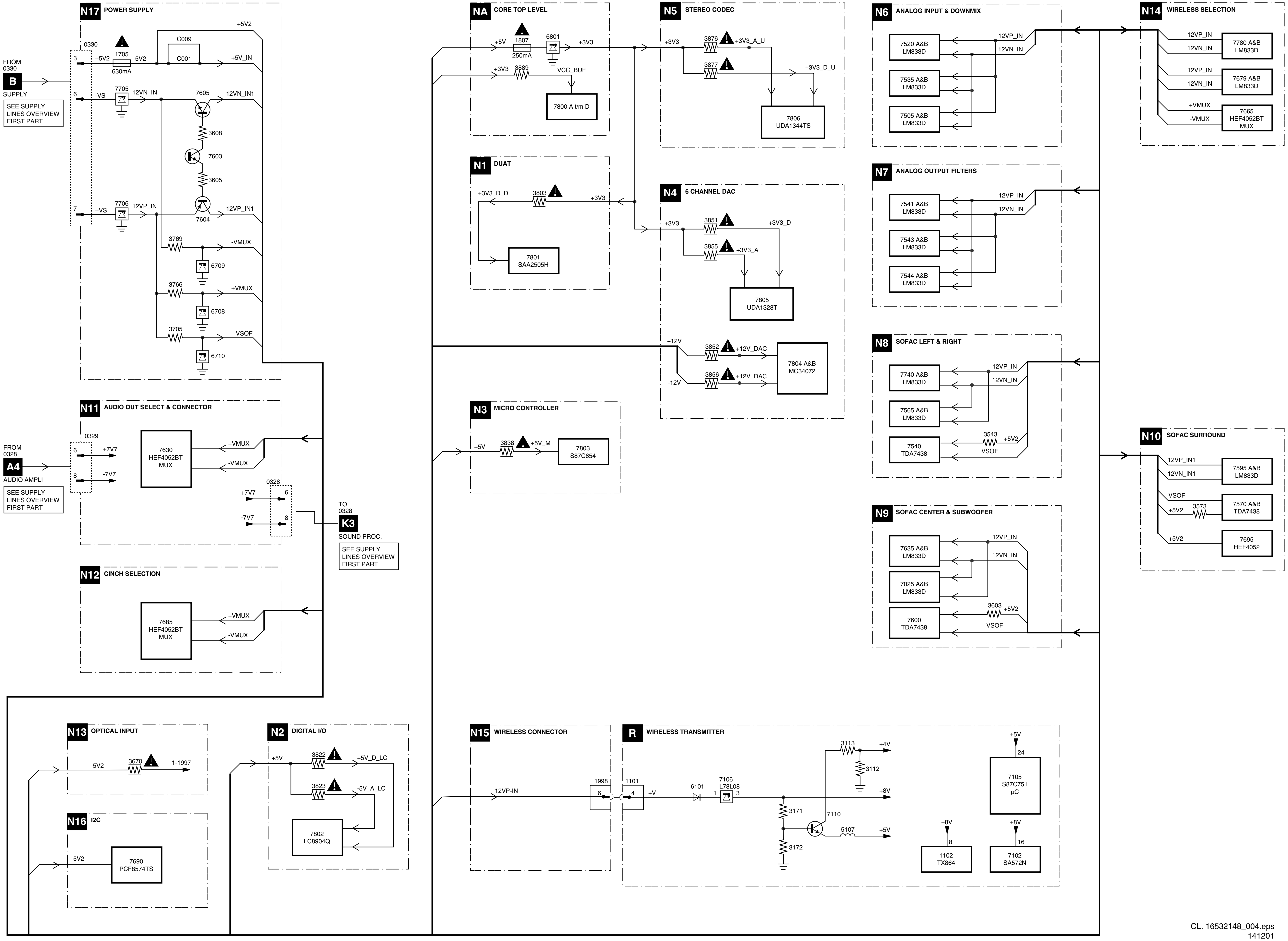
CL 16532148_005.eps
191201

Supply Lines Overview (Part 1)


SUPPLY
E MAINS SWITCH PANEL (PARTLY)
B SUPPLY
A1
MAINS
MAINS FILTER
DEGAUSSING COIL
STANDBY-SUPPLY (SOPS)
MAIN SUPPLY (RESONANCE)
7205 MC34067P
CONTROL
ACTIVATING CIRCUIT
+5V-STANDBY
+VBAT
+VS (+16V)
-VS (-16V)
+25V
+5V2
+5V2-FB
+11V
+8V6
+VTUN (33V)
STANDBY-INFO
DC-PROT
STBY TO 1002 ACTIVATING CIRCUIT
VBAT ADJ.
NOT GROUND
HOT GROUND BORDER
TO 0330 N17 (MCS PANEL)
SEE DIAGRAM SUPPLY LINES OVERVIEW (CONT.)
TO 0310 K1 (TUNER IF)
A1 LINE DEFLECTION
G DC SHIFT
DAF BLOCK
LOT
EHT
FOCUS
To ANODE CRT
LINE DRIVE
F CRT
I DAF
LINE DEFLECTION COIL
A3 FRAME DEFLECTION
H N/S
A4 AMPLIFIERS
N11 AUDIO OUT SELECT
SEE ALSO SUPPLY LINES OVERVIEW (CONT.)
A2 LINE DEFLECTION DAF
SC1 AUTO SCAVEM
SC2 AUTO SCAVEM PCR (OPTIONAL)
M1 TUNER+IF
M2 SELECTOR SWITCHES
M3 FILTERS + BUFFERS
M5 AUDIO
M4 DW IC + MEMORY
L1 FEATURE BOX
L3 FALCONIC
L2 EAGLE
K1 TUNER, IF VIDEO PROC.
K2 INPUT/OUTPUT
O SIDE I/O
K7 TXT & CONTROL
K3 SOUND PROCESSING
K4 AUDIO DOLBY
K8 SOURCE SELECTION
K6 SOURCE SELECTION

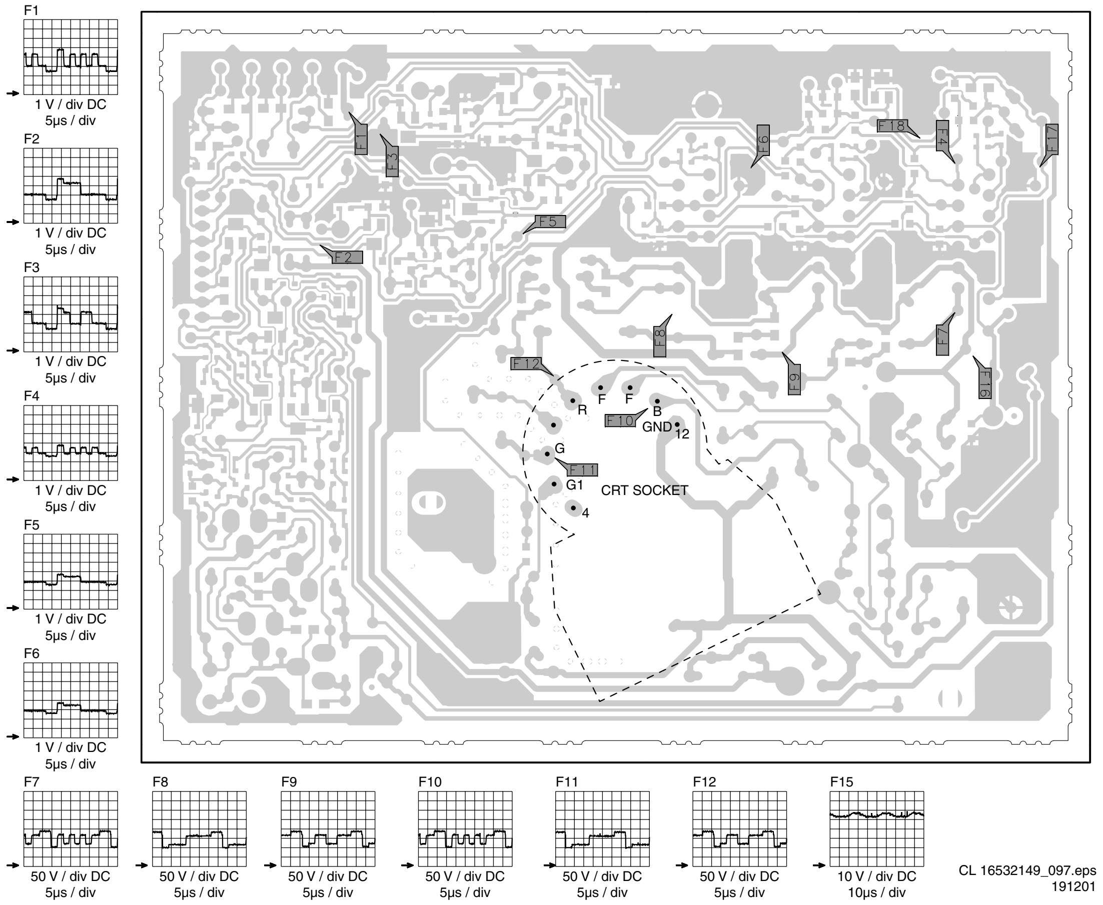
CL 16532148_008.eps
191201

Supply Lines Overview (Part 2)


N17 POWER SUPPLY
FROM 0330
B
SUPPLY
SEE SUPPLY LINES OVERVIEW FIRST PART
0330
3 +5V2 1705 630mA 5V2
C009
C001
+5V2
+5V_IN
6 -VS 7705 12VN_IN 7605 12VN_IN1
3608
7603
3605
7 +VS 7706 12VP_IN 7604 12VP_IN1
3769 -VMUX 6709
3766 +VMUX 6708
3705 VSOF 6710
N11 AUDIO OUT SELECT & CONNECTOR
FROM 0328
A4
AUDIO AMPLI
SEE SUPPLY LINES OVERVIEW FIRST PART
0329
6 +7V7
8 -7V7
7630 HEF4052BT MUX
+VMUX
-VMUX
0328
+7V7 6
-7V7 8
TO 0328
K3
SOUND PROC.
SEE SUPPLY LINES OVERVIEW FIRST PART
N12 CINCH SELECTION
7685 HEF4052BT MUX
+VMUX
-VMUX
N13 OPTICAL INPUT
5V2 3670 1-1997
N16 I2C
5V2
7690 PCF8574TS
N2 DIGITAL I/O
+5V 3822 +5V_D_LC
3823 -5V_A_LC
7802 LC8904Q
NA CORE TOP LEVEL
+5V 1807 250mA 6801 +3V3
+3V3 3889 VCC_BUF
7800 A t/m D
N1 DUAT
+3V3_D_D 3803 +3V3
7801 SAA2505H
N3 MICRO CONTROLLER
+5V 3838 +5V_M
7803 S87C654
N15 WIRELESS CONNECTOR
12VP-IN
1998 6
N5 STEREO CODEC
+3V3 3876 +3V3_A_U
3877 +3V3_D_U
7806 UDA1344TS
N4 6 CHANNEL DAC
+3V3 3851 +3V3_D
3855 +3V3_A
7805 UDA1328T
+12V 3852 +12V_DAC
-12V 3856 +12V_DAC
7804 A&B MC34072
R WIRELESS TRANSMITTER
1101 4 +V
6101
7106 L78L08 1 3
3113 +4V
3112
+8V
3171
7110
5107 +5V
3172
+8V 8 1102 TX864
+5V 24 7105 S87C751 µC
+8V 16 7102 SA572N
N6 ANALOG INPUT & DOWNMIX
7520 A&B LM833D
7535 A&B LM833D
7505 A&B LM833D
12VP_IN
12VN_IN
N7 ANALOG OUTPUT FILTERS
7541 A&B LM833D
7543 A&B LM833D
7544 A&B LM833D
12VP_IN
12VN_IN
N8 SOFAC LEFT & RIGHT
7740 A&B LM833D
7565 A&B LM833D
7540 TDA7438
12VP_IN
12VN_IN
3543 +5V2
VSOF
N9 SOFAC CENTER & SUBWOOFER
7635 A&B LM833D
7025 A&B LM833D
7600 TDA7438
12VP_IN
12VN_IN
3603 +5V2
VSOF
N14 WIRELESS SELECTION
12VP_IN 12VN_IN 7780 A&B LM833D
12VP_IN 12VN_IN 7679 A&B LM833D
+VMUX -VMUX 7665 HEF4052BT MUX
N10 SOFAC SURROUND
12VP_IN1 12VN_IN1 7595 A&B LM833D
VSOF +5V2 3573 7570 A&B TDA7438
+5V2 7695 HEF4052

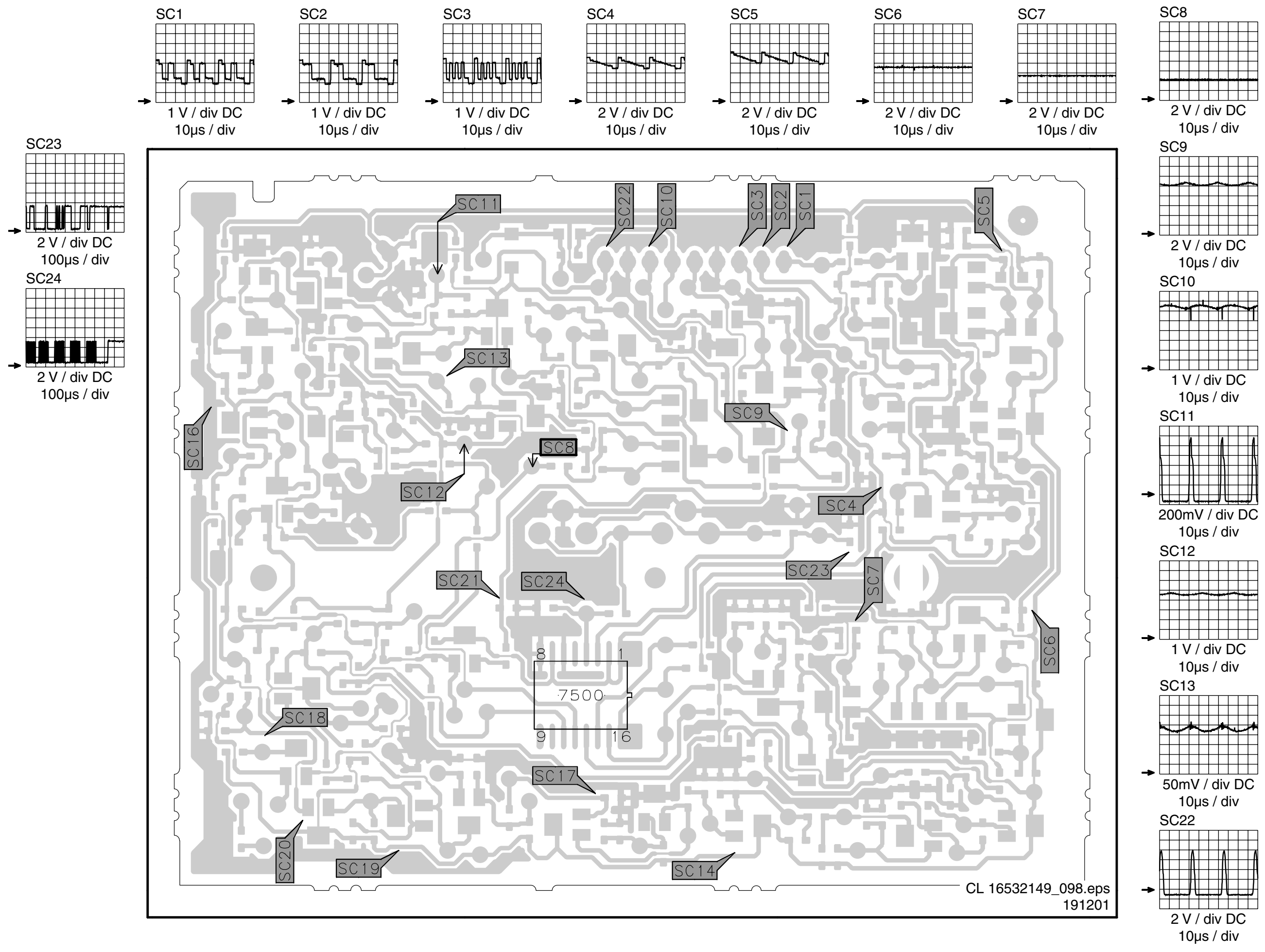
CL. 16532148_004.eps
141201

CRT / SCAVEM panel (F) (Copper Side)


F1
1 V / div DC
5µs / div
F2
1 V / div DC
5µs / div
F3
1 V / div DC
5µs / div
F4
1 V / div DC
5µs / div
F5
1 V / div DC
5µs / div
F6
1 V / div DC
5µs / div
F7
50 V / div DC
5µs / div
F8
50 V / div DC
5µs / div
F9
50 V / div DC
5µs / div
F10
50 V / div DC
5µs / div
F11
50 V / div DC
5µs / div
F12
50 V / div DC
5µs / div
F15
10 V / div DC
10µs / div
R
F
F
B
GND
12
G
G1
4
CRT SOCKET

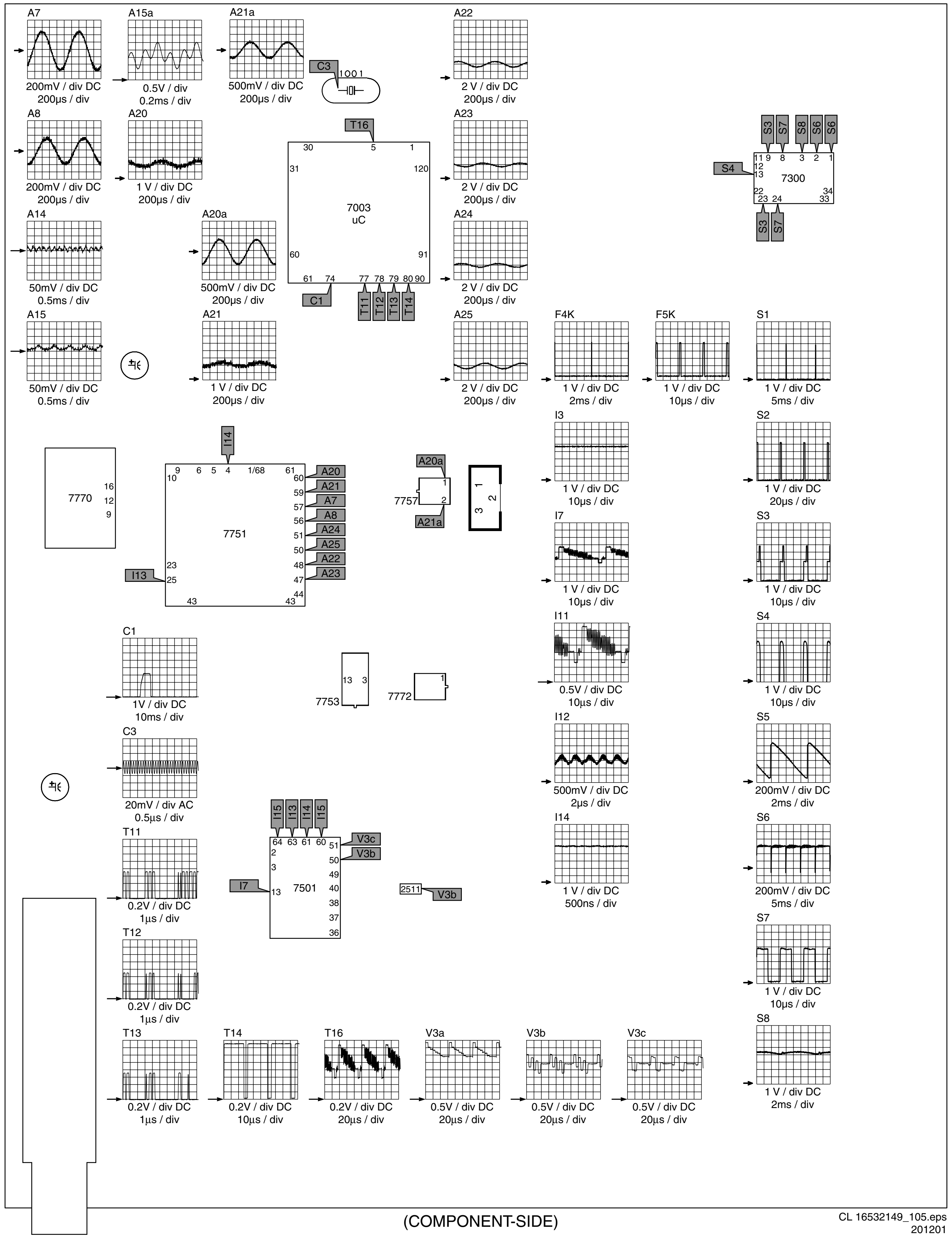
CL 16532149_097.eps
191201

Auto SCAVEM Panel (SC) (Copper Side)


SC1
1 V / div DC
10µs / div
SC2
1 V / div DC
10µs / div
SC3
1 V / div DC
10µs / div
SC4
2 V / div DC
10µs / div
SC5
2 V / div DC
10µs / div
SC6
2 V / div DC
10µs / div
SC7
2 V / div DC
10µs / div
SC8
2 V / div DC
10µs / div
SC9
2 V / div DC
10µs / div
SC10
1 V / div DC
10µs / div
SC11
200mV / div DC
10µs / div
SC12
1 V / div DC
10µs / div
SC13
50mV / div DC
10µs / div
SC22
2 V / div DC
10µs / div
SC23
2 V / div DC
100µs / div
SC24
2 V / div DC
100µs / div
7500
8
1
9
16

CL 16532149_098.eps
191201

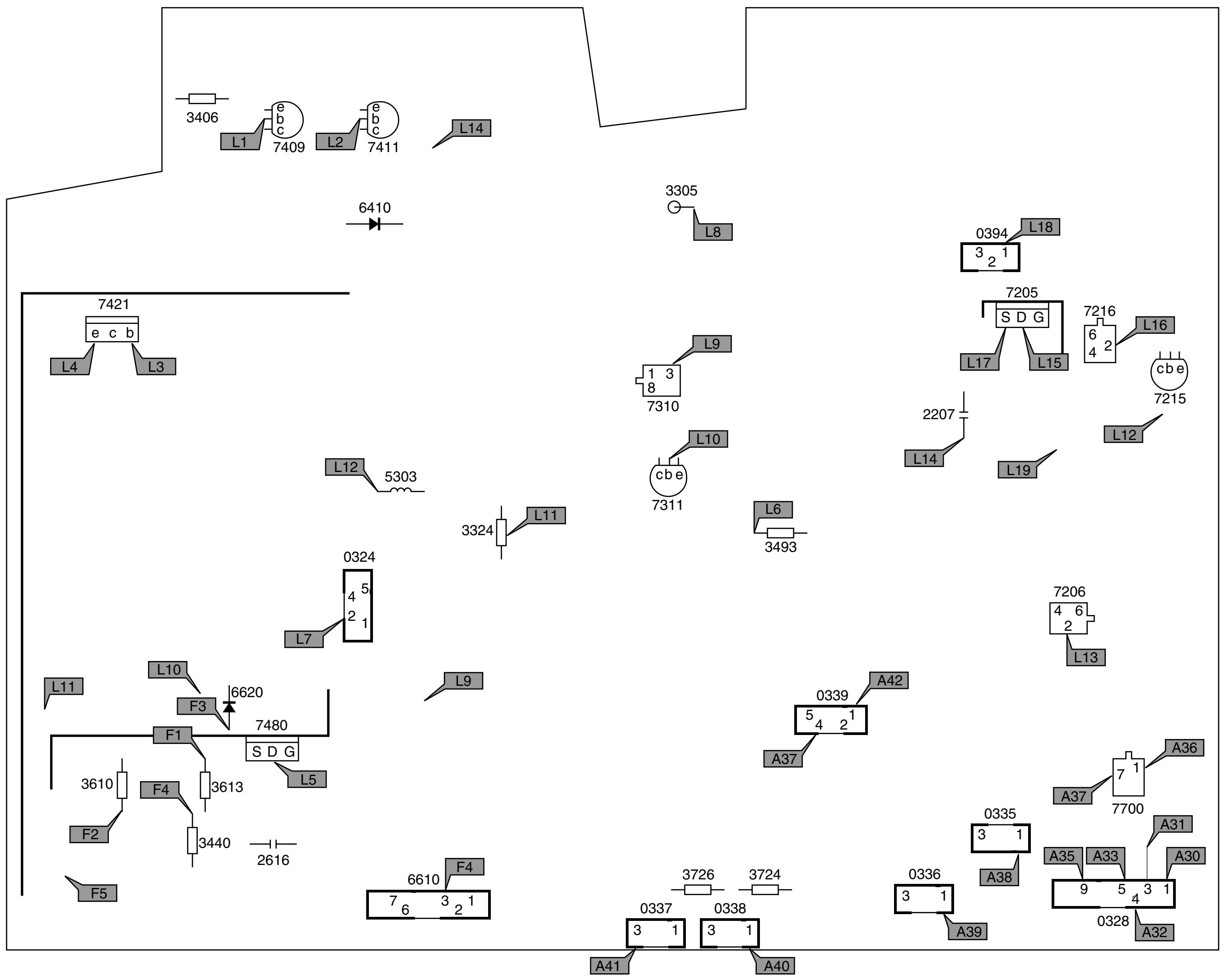
Small signal panel (K)


A7
200mV / div DC
200µs / div
A15a
0.5V / div
0.2ms / div
A21a
500mV / div DC
200µs / div
A22
2 V / div DC
200µs / div
A8
200mV / div DC
200µs / div
A20
1 V / div DC
200µs / div
A23
2 V / div DC
200µs / div
A14
50mV / div DC
0.5ms / div
A20a
500mV / div DC
200µs / div
A24
2 V / div DC
200µs / div
A15
50mV / div DC
0.5ms / div
A21
1 V / div DC
200µs / div
A25
2 V / div DC
200µs / div
F4K
1 V / div DC
2ms / div
F5K
1 V / div DC
10µs / div
S1
1 V / div DC
5ms / div
I3
1 V / div DC
10µs / div
S2
1 V / div DC
20µs / div
I7
1 V / div DC
10µs / div
S3
1 V / div DC
10µs / div
I11
0.5V / div DC
10µs / div
S4
1 V / div DC
10µs / div
I12
500mV / div DC
2µs / div
S5
200mV / div DC
2ms / div
I14
1 V / div DC
500ns / div
S6
200mV / div DC
5ms / div
S7
1 V / div DC
10µs / div
S8
1 V / div DC
2ms / div
C1
1V / div DC
10ms / div
C3
20mV / div AC
0.5µs / div
T11
0.2V / div DC
1µs / div
T12
0.2V / div DC
1µs / div
T13
0.2V / div DC
1µs / div
T14
0.2V / div DC
10µs / div
T16
0.2V / div DC
20µs / div
V3a
0.5V / div DC
20µs / div
V3b
0.5V / div DC
20µs / div
V3c
0.5V / div DC
20µs / div
C3
1001
T16
7003
uC
30
5
1
31
120
60
91
61
74
77
78
79
80
90
C1
T11
T12
T13
T14
7300
S3
S7
S8
S6
S6
S4
11
9
8
3
2
1
12
13
22
34
23
24
33
S3
S7
I14
7770
16
12
9
7751
9
6
5
4
1/68
61
10
60
59
57
56
51
50
48
47
44
23
25
43
43
A20
A21
A7
A8
A24
A25
A22
A23
I13
A20a
7757
1
2
A21a
3
2
1
7753
13
3
7772
1
I15
I13
I14
I15
7501
64
63
61
60
2
3
13
51
50
49
40
38
37
36
V3c
V3b
I7
2511
V3b

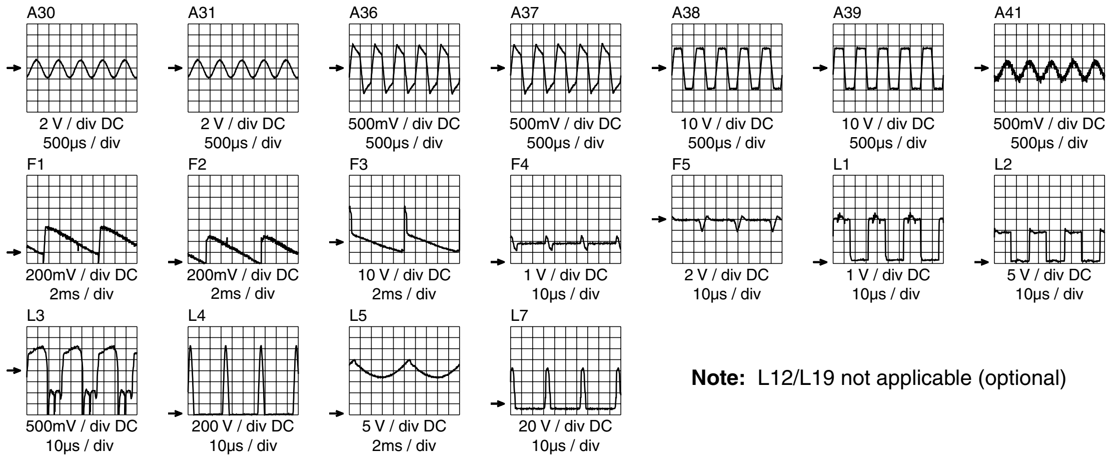
(COMPONENT-SIDE)

CL 16532149_105.eps
201201

Large Signal Panel (A)


3406
L1
7409
e b c
L2
7411
e b c
L14
6410
3305
L8
0394
L18
3 2 1
7205
S D G
7216
6 4 2
L16
7421
e c b
L4
L3
L9
1 3 8
7310
L17
L15
c b e
7215
2207
L14
L19
L12
L12
5303
L10
c b e
7311
L11
3324
L6
3493
0324
4 5 2 1
L7
7206
4 6 2
L13
L10
6620
L11
F3
L9
0339
5 4 2 1
A42
7480
S D G
F1
A37
A36
7 1
7700
3610
3613
F4
L5
3440
2616
F2
A37
0335
3 1
A38
A31
F5
F4
6610
7 6 3 2 1
3726
3724
0337
0338
3 1
3 1
0336
3 1
A35
A33
A30
9 5 4 3 1
0328
A32
A39
A41
A40

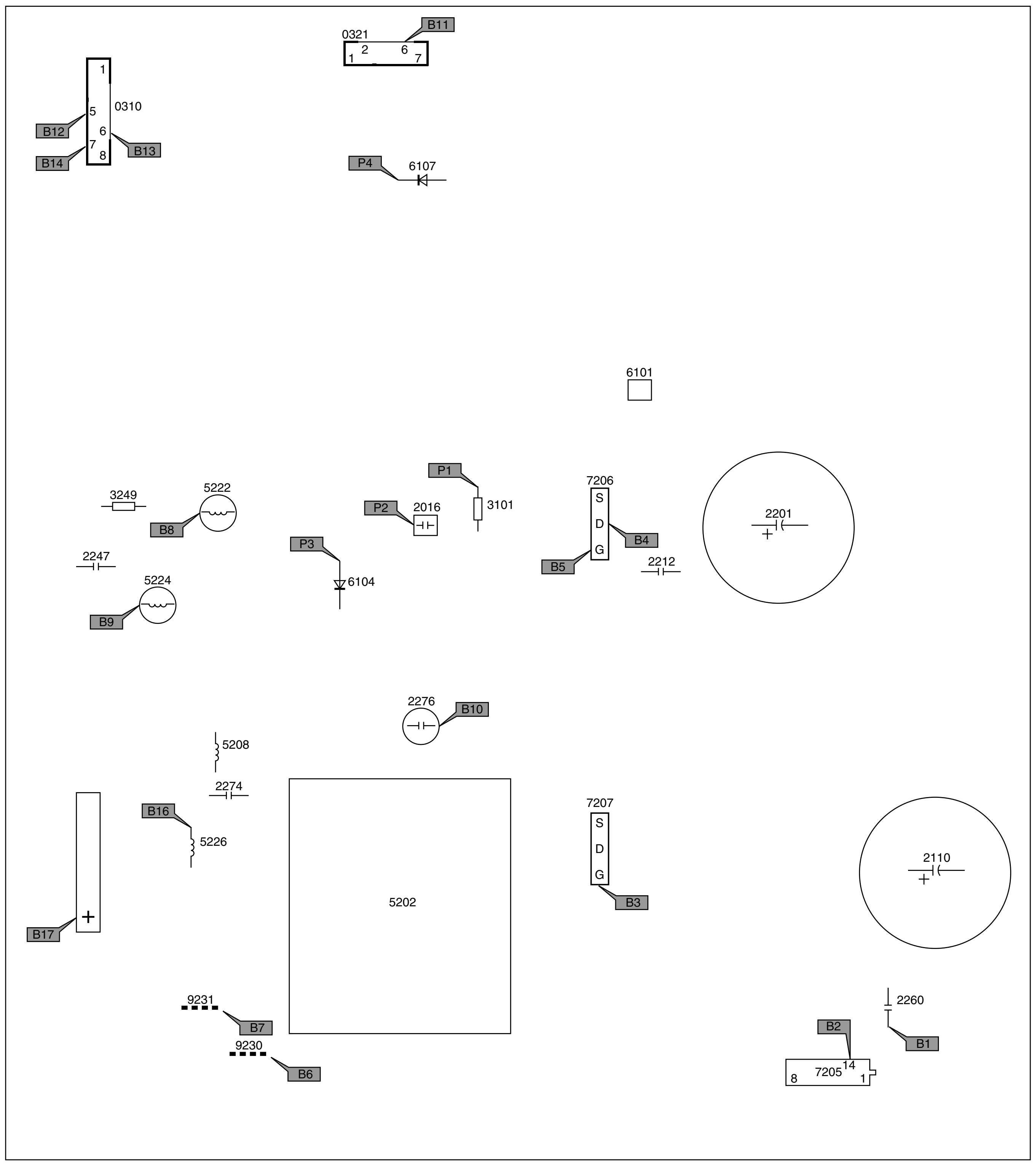
COPPERSIDE



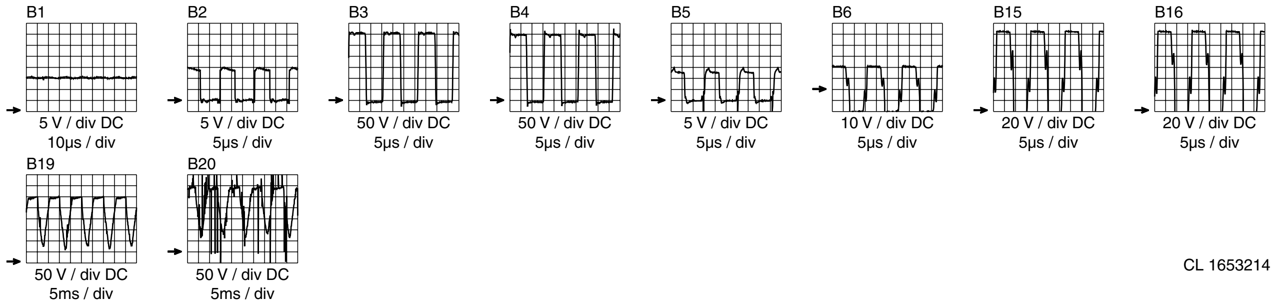
Note: L12/L19 not applicable (optional)

CL 16532149_099.eps
201201

Top Supply (B)

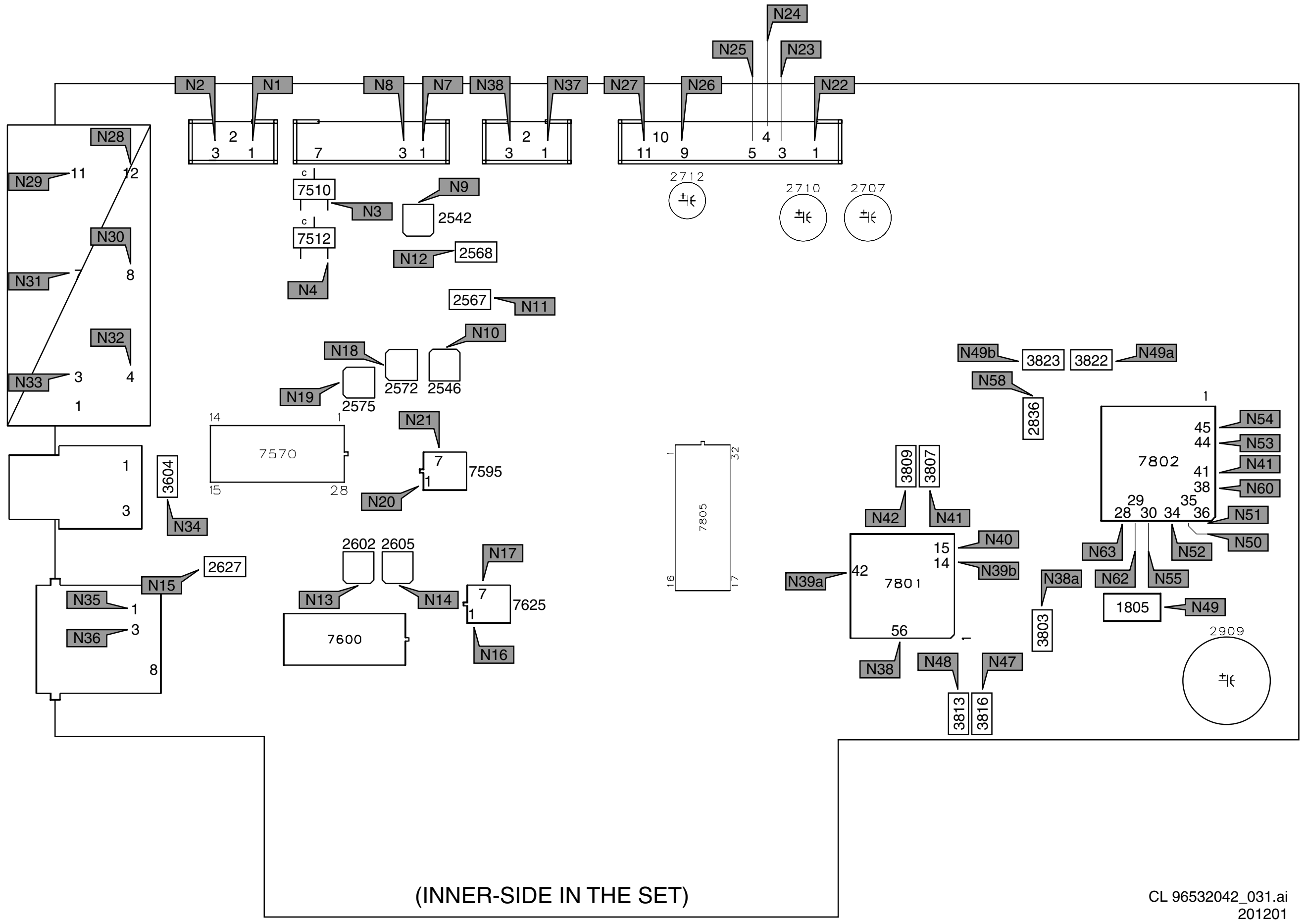

0321
B11
1 2 6 7
1 5 6 7 8
0310
B12
B13
B14
P4
6107
3249
5222
B8
P2
2016
P1
3101
P3
6104
2247
5224
B9
6101
7206
S D G
B4
B5
2212
2201
2276
B10
5208
2274
B16
5226
5202
7207
S D G
B3
2110
B17
9231
B7
9230
B6
2260
B2
B1
8 7205 14 1

COPPERSIDE



CL 16532149_106.eps
191201

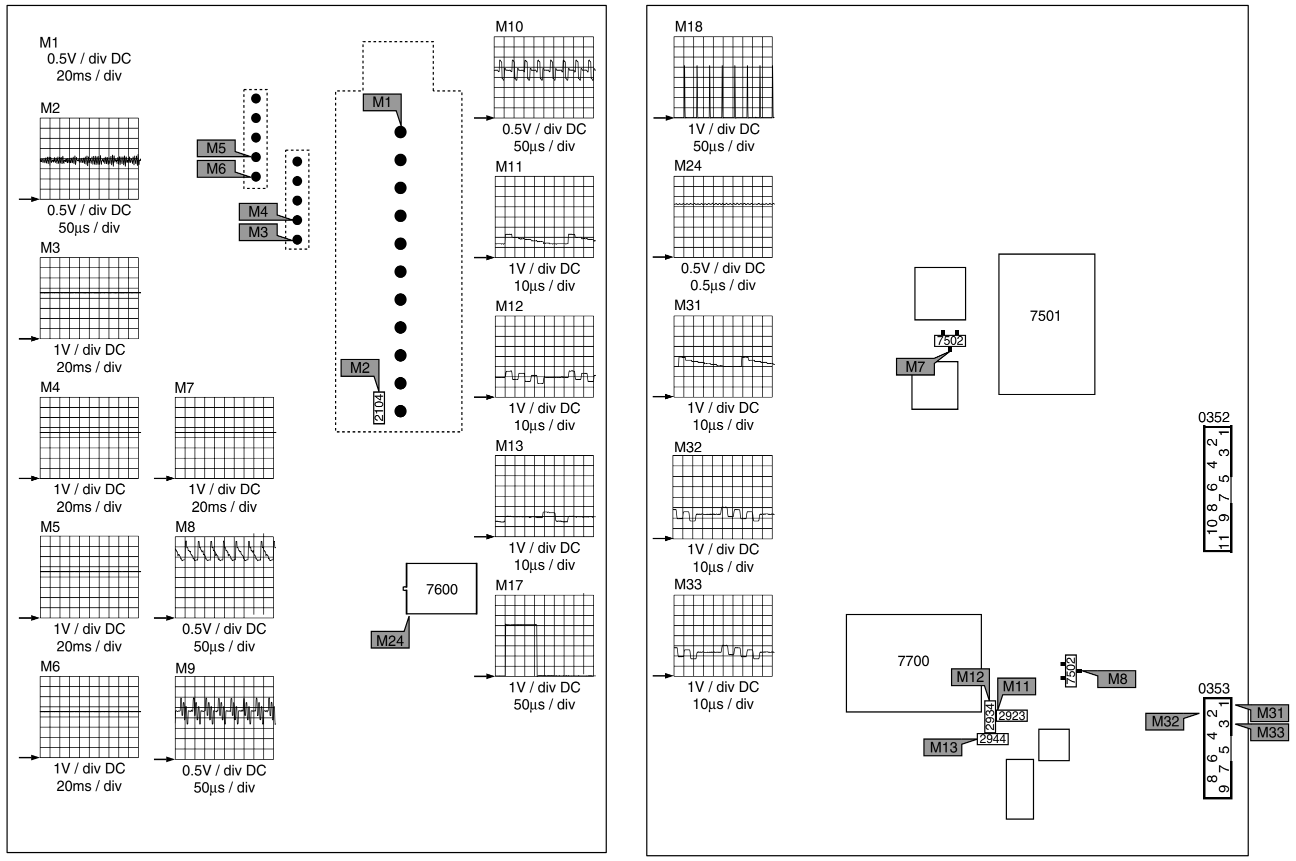
MCS Module (N)


N24
N25
N23
N2
N1
N8
N7
N38
N37
N27
N26
N22
N28
N29
N30
N31
N32
N33
7510
7512
N3
N4
N9
2542
N12
2568
2567
N11
N10
N18
N19
2572
2546
2575
2712
2710
2707
7570
N21
7595
N20
3604
N34
2602
2605
N17
N15
2627
N35
N36
N13
N14
7625
7600
N16
7805
N49b
3823
3822
N49a
N58
2836
3809
3807
N42
N41
N40
N39b
N39a
7801
N38
N48
N47
3813
3816
7802
N54
N53
N41
N60
N51
N50
N63
N62
N55
N52
N38a
3803
1805
N49
2909

(INNER-SIDE IN THE SET)

CL 96532042_031.ai
201201

FDS Module (M)

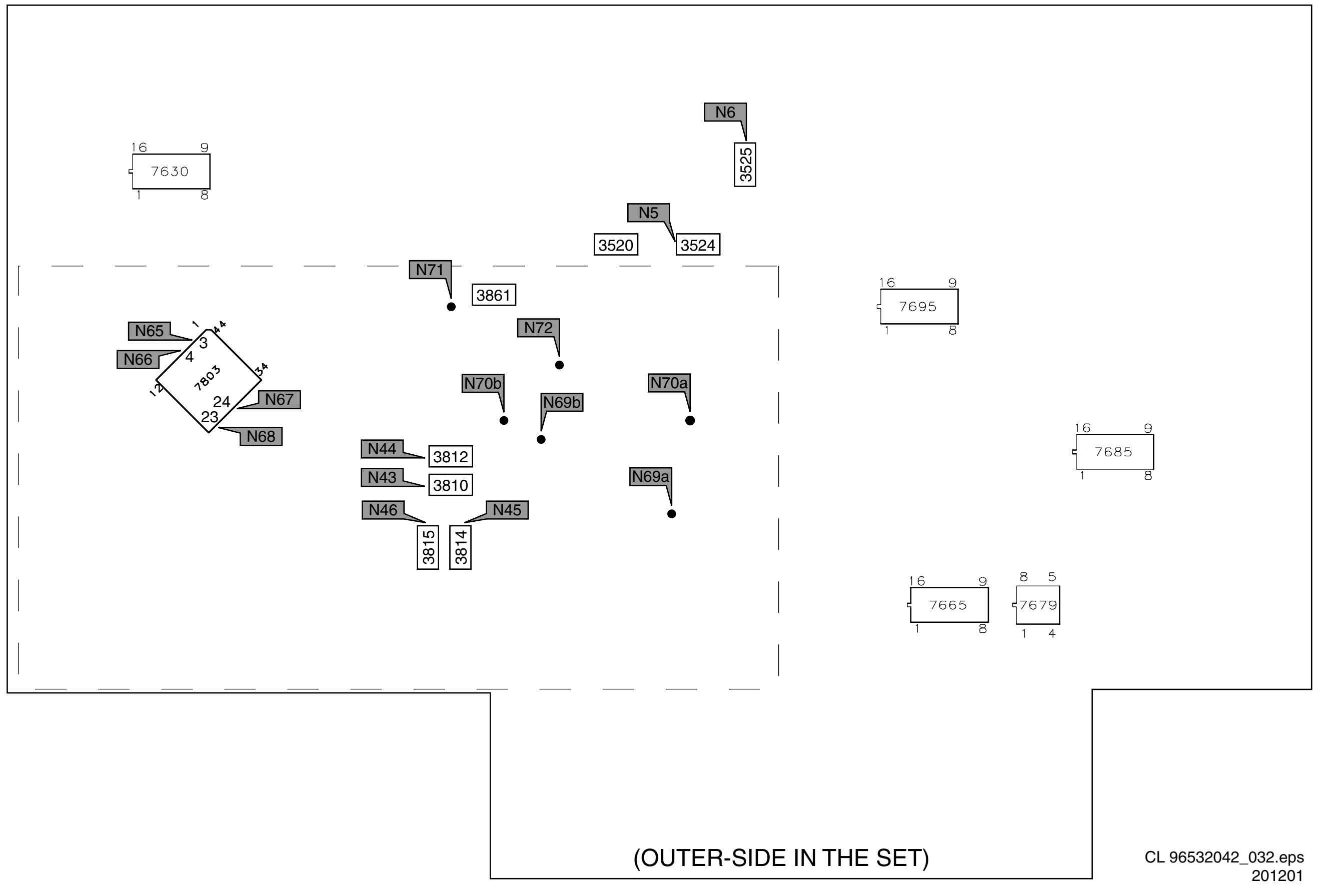

M1
0.5V / div DC
20ms / div
M2
0.5V / div DC
50µs / div
M3
1V / div DC
20ms / div
M4
1V / div DC
20ms / div
M7
1V / div DC
20ms / div
M5
1V / div DC
20ms / div
M8
0.5V / div DC
50µs / div
M6
1V / div DC
20ms / div
M9
0.5V / div DC
50µs / div
M10
0.5V / div DC
50µs / div
M11
1V / div DC
10µs / div
M12
1V / div DC
10µs / div
M13
1V / div DC
10µs / div
M17
1V / div DC
50µs / div
M18
1V / div DC
50µs / div
M24
0.5V / div DC
0.5µs / div
M31
1V / div DC
10µs / div
M32
1V / div DC
10µs / div
M33
1V / div DC
10µs / div
2104
7600
7501
7502
7700
2923
2944
7503
0352
0353

(COPPER -SIDE)

(COMPONENT-SIDE)

CL 96532042_59c
201201

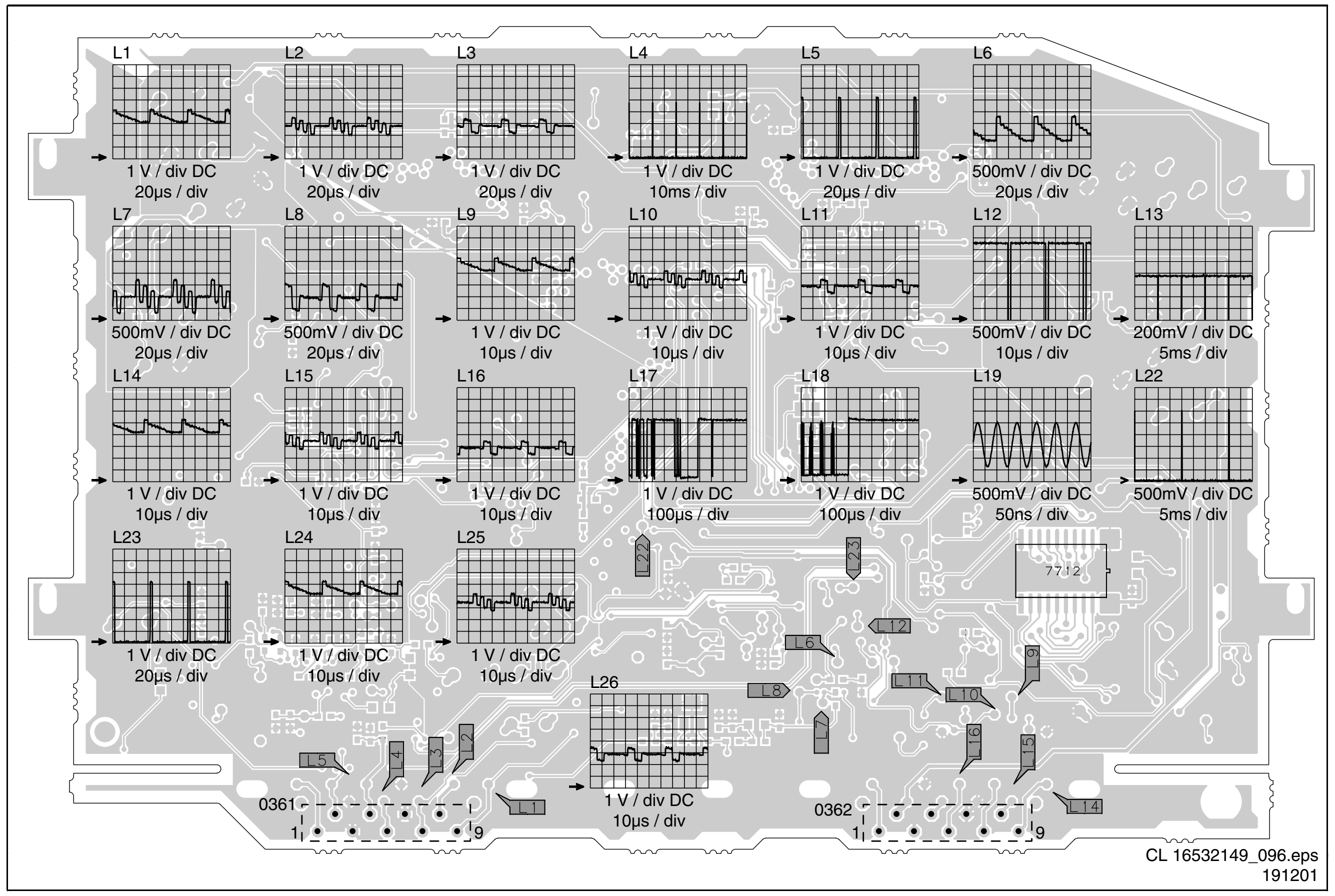
MCS Module (N)


N6
3525
N5
3520
3524
7630
N71
3861
N72
N65
N66
7803
N67
N68
N70b
N69b
N70a
N44
3812
N43
3810
N46
N45
3815
3814
N69a
7695
7685
7665
7679

(OUTER-SIDE IN THE SET)

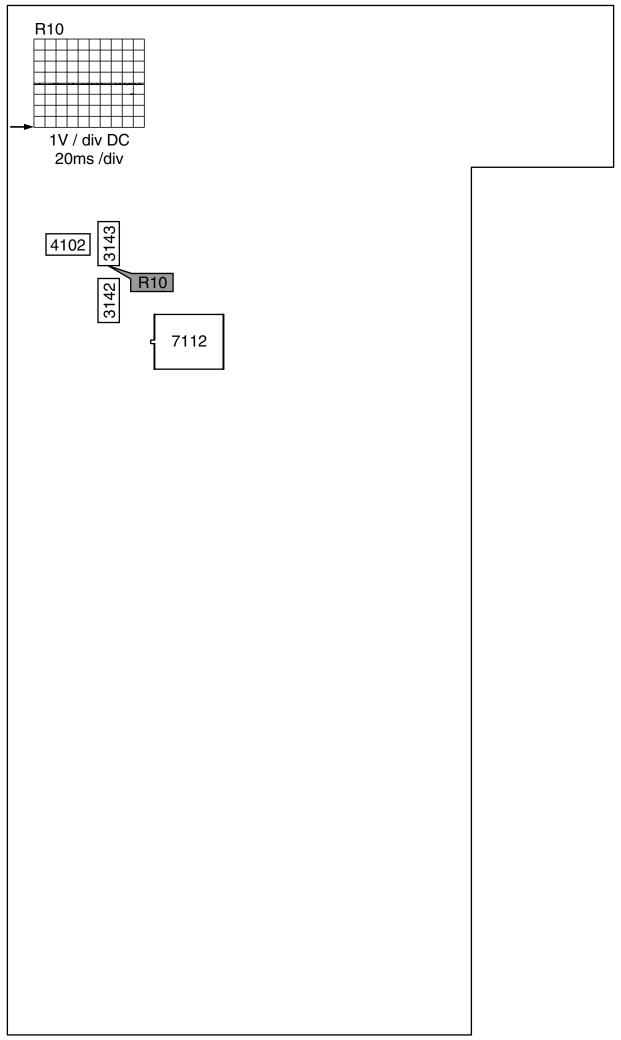
CL 96532042_032.eps
201201

FBX Panel (L) (Copper Side)


L1
1 V / div DC
20µs / div
L2
1 V / div DC
20µs / div
L3
1 V / div DC
20µs / div
L4
1 V / div DC
10ms / div
L5
1 V / div DC
20µs / div
L6
500mV / div DC
20µs / div
L7
500mV / div DC
20µs / div
L8
500mV / div DC
20µs / div
L9
1 V / div DC
10µs / div
L10
1 V / div DC
10µs / div
L11
1 V / div DC
10µs / div
L12
500mV / div DC
10µs / div
L13
200mV / div DC
5ms / div
L14
1 V / div DC
10µs / div
L15
1 V / div DC
10µs / div
L16
1 V / div DC
10µs / div
L17
1 V / div DC
100µs / div
L18
1 V / div DC
100µs / div
L19
500mV / div DC
50ns / div
L22
500mV / div DC
5ms / div
L23
1 V / div DC
20µs / div
L24
1 V / div DC
10µs / div
L25
1 V / div DC
10µs / div
L26
1 V / div DC
10µs / div
7712
0361
0362

CL 16532149_096.eps
191201

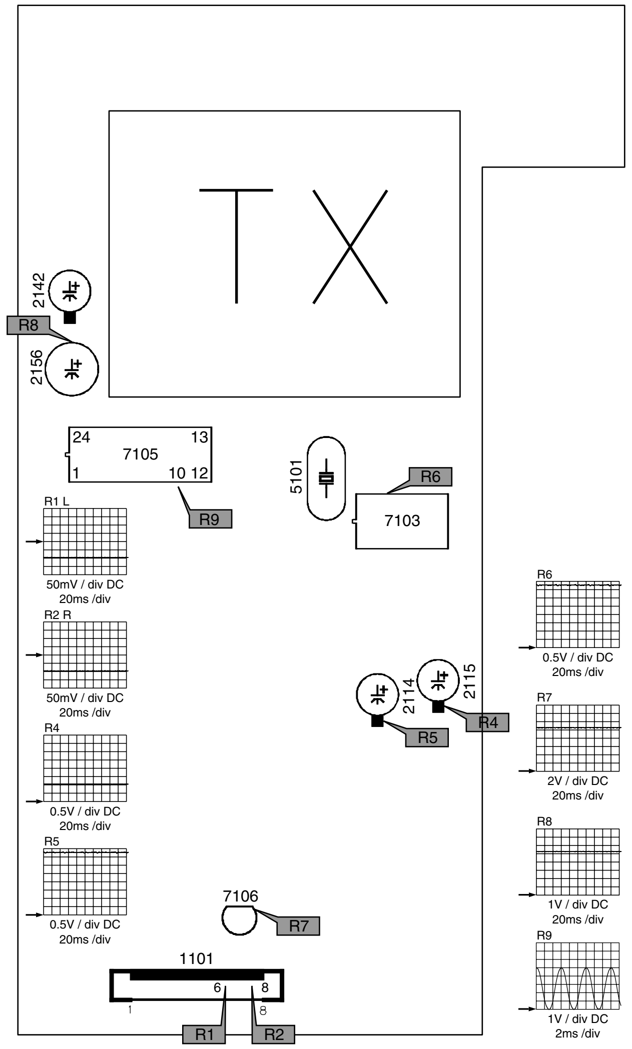
Surround Transmitter (R)


R10
1V / div DC
20ms /div
4102
3143
3142
R10
7112

(COPPER-SIDE)

CL 96532042_056.eps
201201

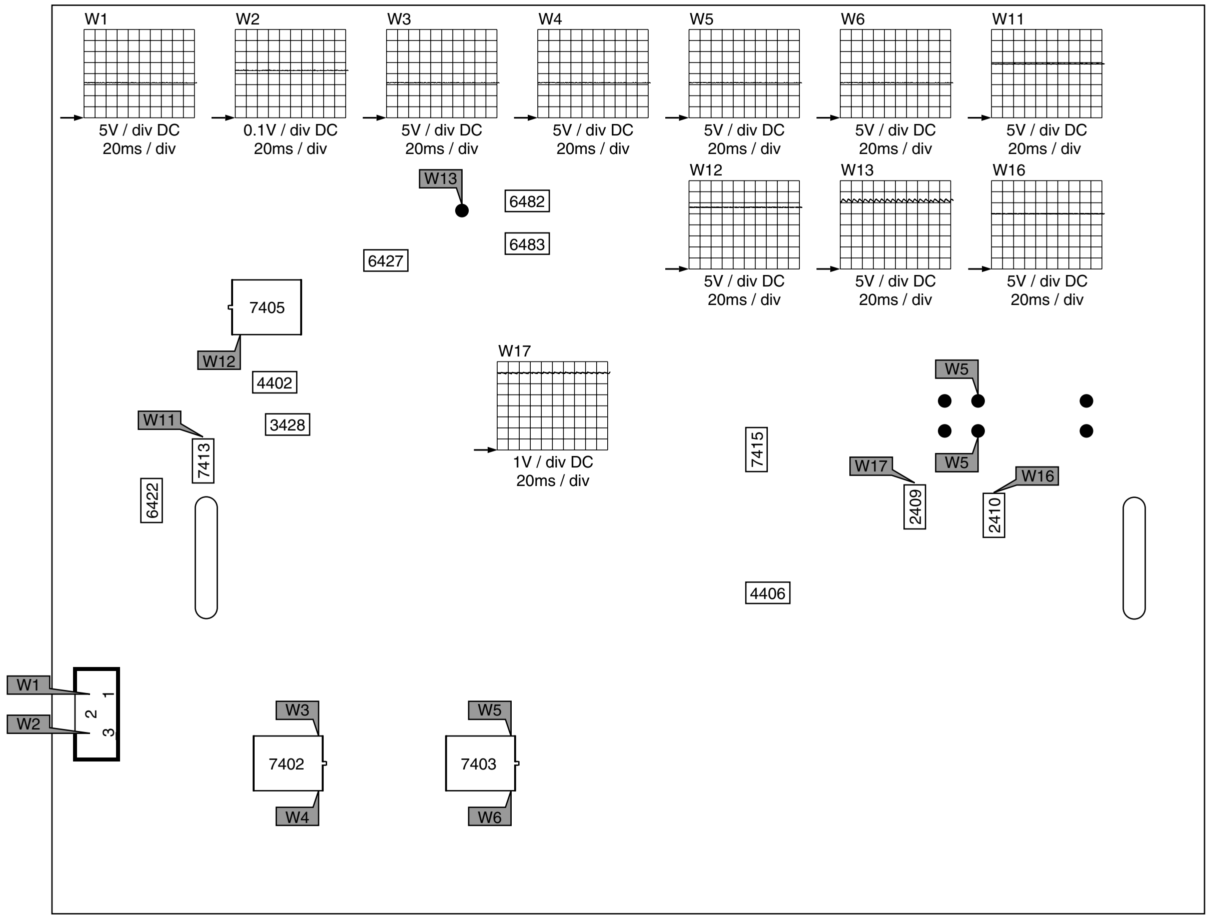
Surround Transmitter (R)


TX
2142
R8
2156
24
13
7105
1
10 12
R9
5101
R6
7103
R1 L
50mV / div DC
20ms /div
R2 R
50mV / div DC
20ms /div
R4
0.5V / div DC
20ms /div
R5
0.5V / div DC
20ms /div
2114
2115
R5
R4
7106
R7
1101
6
8
1
8
R1
R2
R6
0.5V / div DC
20ms /div
R7
2V / div DC
20ms /div
R8
1V / div DC
20ms /div
R9
1V / div DC
2ms /div

(COMPONENT-SIDE)

CL 96532042_057.eps
211201

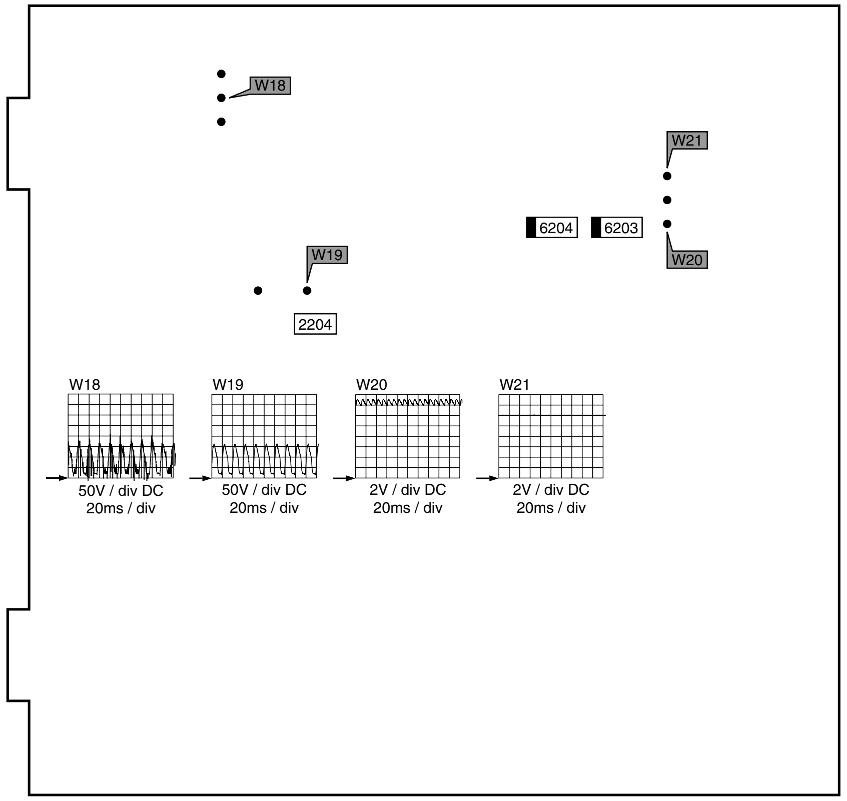
Active Surround Box Amplifier (W1)


W1
5V / div DC
20ms / div
W2
0.1V / div DC
20ms / div
W3
5V / div DC
20ms / div
W4
5V / div DC
20ms / div
W5
5V / div DC
20ms / div
W6
5V / div DC
20ms / div
W11
5V / div DC
20ms / div
W12
5V / div DC
20ms / div
W13
5V / div DC
20ms / div
W16
5V / div DC
20ms / div
W13
6482
6483
6427
7405
W12
4402
3428
W11
7413
6422
W17
1V / div DC
20ms / div
7415
W5
W5
W17
2409
2410
W16
4406
W1
W2
1
2
3
W3
7402
W4
W5
7403
W6

(COPPER -SIDE)

CL 96532042_055.ai
201201

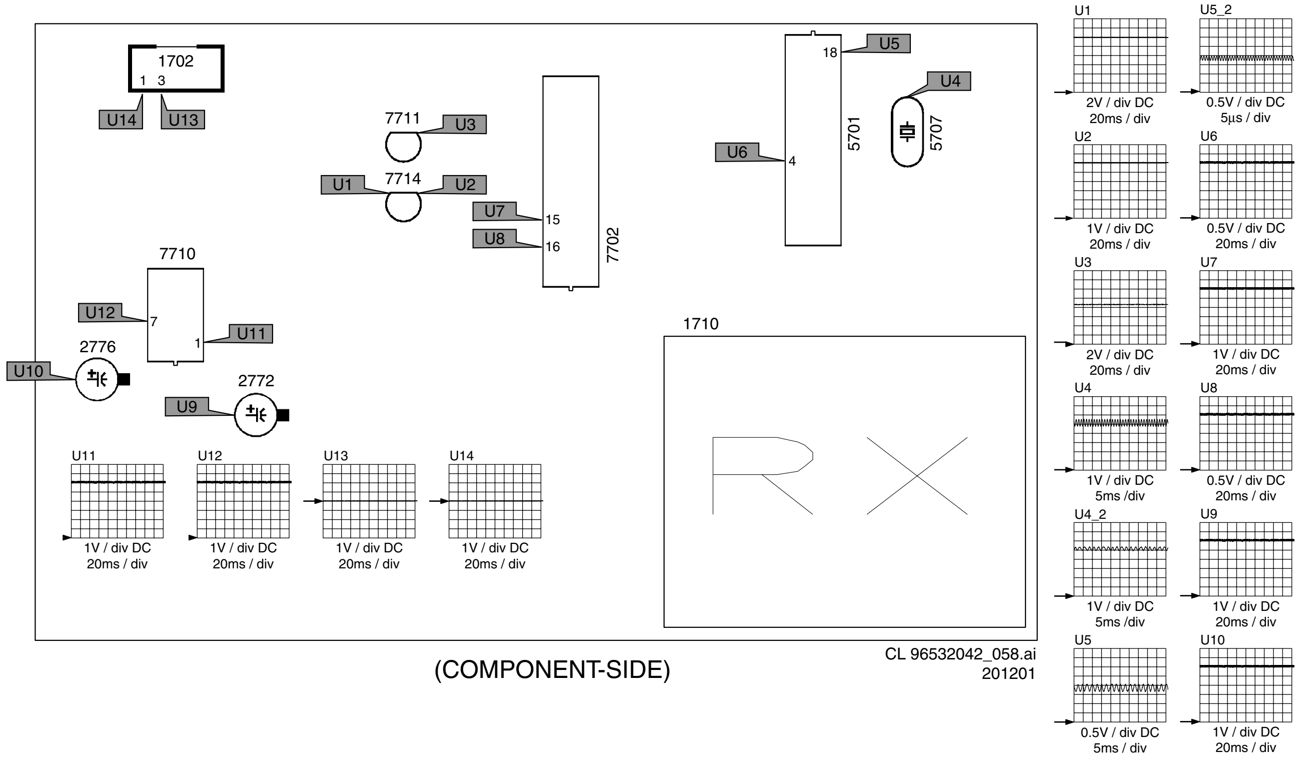
Active Surround Box Supply (W2)


W18
W21
6204
6203
W20
W19
2204
W18
50V / div DC
20ms / div
W19
50V / div DC
20ms / div
W20
2V / div DC
20ms / div
W21
2V / div DC
20ms / div

(COPPER-SIDE)

CL 96532042_054.eps
201201

Surround Receiver (U)

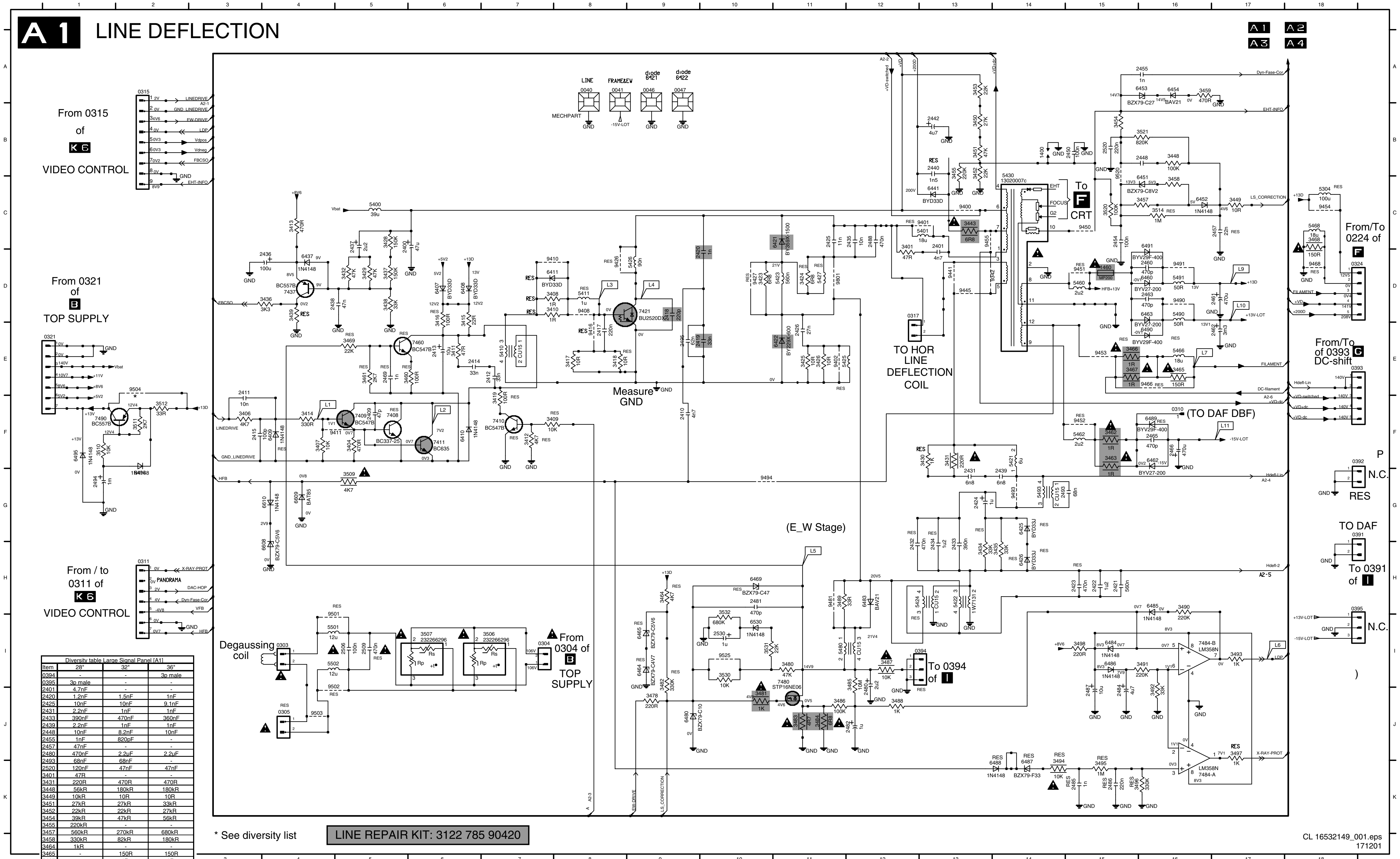

1702
1 3
U14
U13
7711
U3
U1
7714
U2
U7
U8
15
16
7702
18
U5
U4
U6
4
5701
5707
7710
U12
7
U11
1
U10
2776
U9
2772
1710
RX
U11
1V / div DC
20ms / div
U12
1V / div DC
20ms / div
U13
1V / div DC
20ms / div
U14
1V / div DC
20ms / div
U1
2V / div DC
20ms / div
U5_2
0.5V / div DC
5µs / div
U2
1V / div DC
20ms / div
U6
0.5V / div DC
20ms / div
U3
2V / div DC
20ms / div
U7
1V / div DC
20ms / div
U4
1V / div DC
5ms /div
U8
0.5V / div DC
20ms / div
U4_2
1V / div DC
5ms /div
U9
1V / div DC
20ms / div
U5
0.5V / div DC
5ms / div
U10
1V / div DC
20ms / div

(COMPONENT-SIDE)

CL 96532042_058.ai
201201

7. Circuit Diagrams and PWB Layouts

Large Signal Panel: Line Deflection

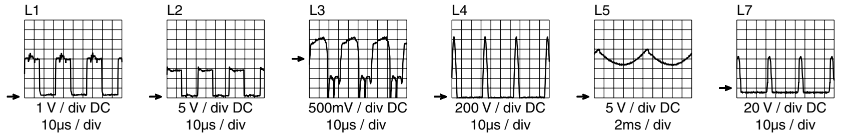

A1
LINE DEFLECTION
A1 A2
A3 A4
From 0315 of K6 VIDEO CONTROL
From 0321 of B TOP SUPPLY
From / to 0311 of K6 VIDEO CONTROL
LINE
FRAME&EW
diode 6421
diode 6422
MECHPART
Measure GND
TO HOR LINE DEFLECTION COIL
To F CRT
FOCUS
G2
EHT
From/To 0224 of F
From/To of 0393 G DC-shift
(TO DAF DBF)
P
N.C.
RES
TO DAF
To 0391 of I
N.C.
(E_W Stage)
Degaussing coil
From 0304 of B TOP SUPPLY
To 0394 of I
LINEDRIVE
FBCSO
HFB
EHT-INFO
Dyn-Fase-Cor
FILAMENT
LS_CORRECTION
BU2520DX
BC557B
BC547B
BC337-25
BC635
STP16NE06
LM358N
5430
13020007c
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
A B C D E F G H I J K

* See diversity list

LINE REPAIR KIT: 3122 785 90420

CL 16532149_001.eps
171201

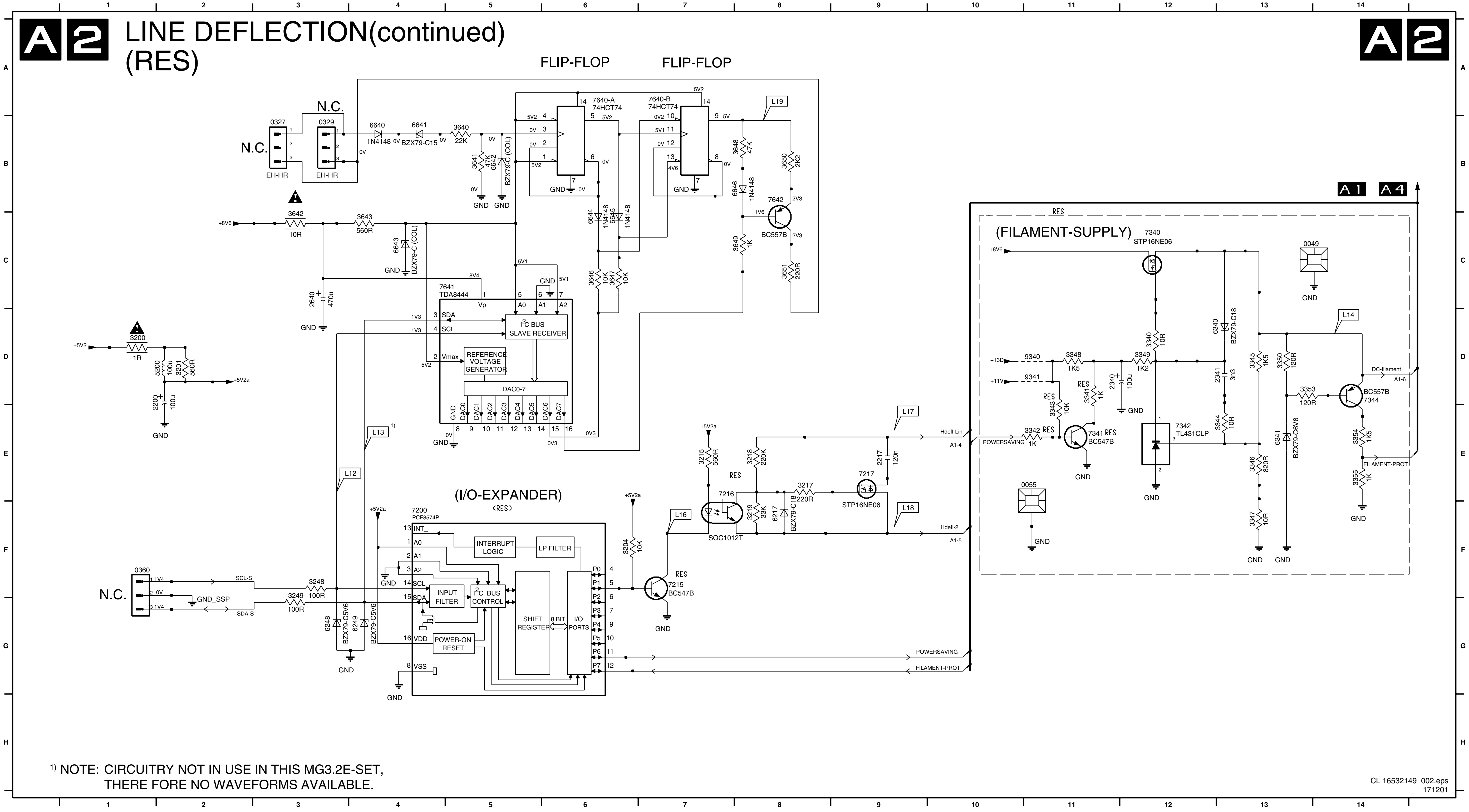
Diversity table Large Signal Panel [A1]			
Item	28"	32"	36"
0394	-	-	3p male
0395	3p male	-	-
2401	4.7nF	-	-
2420	1.2nF	1.5nF	1nF
2425	10nF	10nF	9.1nF
2431	2.2nF	1nF	1nF
2433	390nF	470nF	360nF
2439	2.2nF	1nF	1nF
2448	10nF	8.2nF	10nF
2455	1nF	820pF	-
2457	47nF	-	-
2480	470nF	2.2µF	2.2µF
2493	68nF	68nF	-
2520	120nF	47nF	47nF
3401	47R	-	-
3431	220R	470R	470R
3448	56kR	180kR	180kR
3449	10kR	10R	10R
3451	27kR	27kR	33kR
3452	22kR	22kR	27kR
3454	39kR	47kR	56kR
3455	220kR	-	-
3457	560kR	270kR	680kR
3458	330kR	82kR	180kR
3464	1kR	-	-
3465	-	150R	150R
3467	-	1R	1R
3482	330kR	-	-
3484	3R3	4R7	6R8
3485	7.5MR	10MR	10MR
3487	-	-	10kR
3489	-	-	33R
3520	75kR	100kR	-
3521	1MR	820kR	820kR
3531	47kR	22kR	22kR
3532	680kR	820kR	820kR
5401	18µH	-	-
5421	3128 138 56152	3128 138 57411	3128 138 56611
5430	8204 000 75001	3128 138 20931	3128 138 20931
5466	18µH	15µH	15µH
5468	18µH	10µH	10µH
5490	-	Bead	-
5493	3128 138 38881	3128 138 38881	-
6483	-	-	BAV21
9401	-	Jumper	Jumper
9481	Jumper	Jumper	-
9490	Jumper	-	Jumper
9493	-	-	Jumper



0040 A8
0041 A8
0046 A9
0047 A9
0303 I4
0304 I7
0305 J4
0310 F16
0311 H2
0315 A2
0317 D12
0321 E1
0324 D18
0391 G18
0392 F18
0393 E18
0394 I12
0395 H18
1400 B14
1460 D15
2400 C5
2401 C13
2409 F5
2410 F9
2411 E3
2412 E7
2413 E6
2414 E6
2415 F3
2417 E8
2418 D9
2419 E9
2420 D9
2421 H15
2422 H15
2423 H15
2424 G13
2425 C11
2426 E11
2431 G13
2432 H12
2433 H13
2434 H13
2435 C12
2436 D4
2437 C5
2438 D4
2439 G14
2440 B13
2442 B13
2448 B16
2450 B15
2454 C15
2455 A16
2457 C17
2460 D16
2461 D17
2462 E17
2463 D16
2465 F16
2466 F16
2469 E5
2480 J12
2481 H10
2482 J12
2484 J15
2485 K15
2486 K15
2487 J15
2488 C12
2493 G14
2494 G1
2495 E9
2506 I5
2509 I5
2520 B15
2530 I10
3401 C12
3404 F5
3406 F3
3407 F4
3408 D7
3409 F7
3410 D7
3411 E6
3412 F7
3413 C4
3414 F4
3415 D6
3416 D6
3417 E8
3418 E8
3419 F7
3423 D10
3424 D11
3425 E11
3426 E11
3428 C5
3429 D5
3430 F13
3431 F13
3432 D5
3434 H13
3435 H14
3436 D4
3437 D5
3438 D5
3439 D4
3443 C13
3448 B16
3449 C17
3450 B13
3451 B13
3452 B13
3453 A13
3454 B15
3455 B13
3457 C16
3458 C16
3459 A16
3460 E6
3461 E5
3462 F15
3463 F15
3464 H9
3465 E16
3466 E15
3467 E15
3468 C18
3469 E5
3478 J9
3480 I11
3481 J10
3482 I9
3483 J11
3484 J11
3485 I12
3486 J11
3487 I12
3488 J12
3489 H11
3490 H16
3491 I16
3492 J16
3493 I17
3494 K14
3495 K15
3496 K16
3497 J17
3498 I15
3506 I7
3507 I6
3509 G5
3510 F1
3511 F2
3512 F2
3514 C16
3520 C15
3521 B16
3530 I10
3531 I10
3532 H10
3998 K4
5304 C18
5400 C5
5401 C13
5410 E7
5411 D8
5421 F14
5422 H13
5423 D11
5424 H12
5425 E11
5426 D9
5427 D11
5430 C14
5460 D15
5462 F15
5466 E16
5468 C18
5480 I11
5490 D16
5491 D16
5493 G14
5501 I4
5502 I4
6407 D6
6408 D6
6409 F4
6410 F6
6411 D7
6421 C10
6422 E11
6423 D10
6424 E10
6425 G14
6426 H14
6437 D4
6441 C13
6451 C16
6452 C16
6453 A16
6454 A16
6460 D16
6462 F16
6463 D16
6464 I9
6465 I9
6469 H10
6480 J9
6483 H12
6484 I15
6485 H16
6486 I15
6487 K14
6488 K14
6489 F16
6490 E16
6491 C16
6495 F1
6496 G2
6530 I10
6608 H4
6609 G4
6610 G4
7408 F5
7409 F5
7410 F7
7411 F6
7421 D9
7437 D4
7460 E6
7480 I11
7484-A K16
7484-B I16
7490 F1
9342 D13
9400 C13
9401 C13
9402 E11
9408 D8
9410 D7
9411 F5
9416 E8
9426 D8
9427 D10
9441 D13
9445 D13
9450 C15
9451 D15
9452 F15
9453 E15
9454 C18
9455 C13
9466 E16
9468 D18
9481 H11
9490 D16
9491 D16
9493 G14
9494 G10
9501 I4
9502 J4
9503 J4
9504 E2
9520 B15
9525 I10
9801 D11

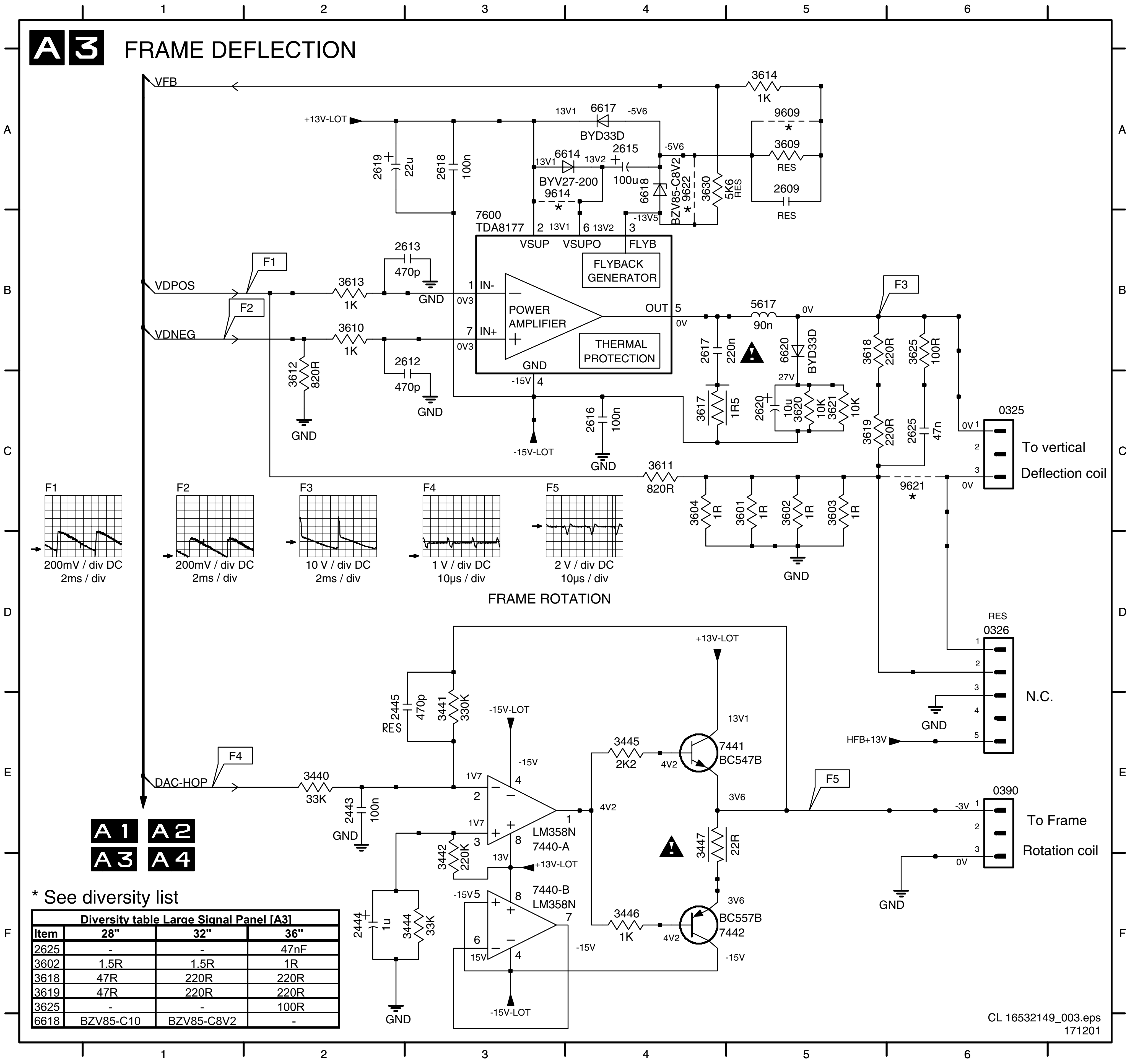
Large Signal Panel: Line Deflection (Continued)

0049	C13
0055	E10
0327	B3
0329	B3
0360	F1
2200	D2
2217	E9
2340	D11
2341	D13
2640	C3
3200	D1
3201	D2
3204	F6
3215	E7
3217	E8
3218	E8
3219	F8
3248	F3
3249	G3
3340	D12
3341	D11
3342	E11
3343	E11
3344	E13
3345	D13
3346	E13
3347	F13
3348	D11
3349	D12
3350	D13
3353	D13
3354	E14
3355	E14
3640	B5
3641	B5
3642	C3
3643	C4
3646	C6
3647	C6
3648	B8
3649	C8
3650	B8
3651	C8
5200	D2
6217	F8
6248	G3
6249	G4
6340	D13
6341	E13
6640	B4
6641	B4
6642	B5
6643	C4
6644	C6
6645	C6
6646	B8
7200	F4
7215	F7
7216	E7
7217	E9
7340	C12
7341	E11
7342	E12
7344	D14
7640-A	A6
7640-B	A7
7641	C4
7642	B8
9340	D11
9341	D11


A2
LINE DEFLECTION(continued)
(RES)
FLIP-FLOP
FLIP-FLOP
7640-A 74HCT74
7640-B 74HCT74
N.C.
0327
0329
EH-HR
6640 1N4148
6641 BZX79-C15
3640 22K
3641 47K
6642 BZX79-C (COL)
+8V6
3642 10R
3643 560R
6643 BZX79-C (COL)
2640 470u
7641 TDA8444
I2C BUS SLAVE RECEIVER
REFERENCE VOLTAGE GENERATOR
DAC0-7
6644 1N4148
6645 1N4148
3646 10K
3647 10K
3648 47K
6646 1N4148
3649 1K
3650 2K2
3651 220R
7642 BC557B
L19
+5V2
3200 1R
5200 100u
3201 560R
2200 100u
+5V2a
L13
L12
(I/O-EXPANDER)
7200 PCF8574P
INTERRUPT LOGIC
LP FILTER
INPUT FILTER
I2C BUS CONTROL
SHIFT REGISTER
8 BIT
I/O PORTS
POWER-ON RESET
0360
SCL-S
SDA-S
GND_SSP
3248 100R
3249 100R
6248 BZX79-C5V6
6249 BZX79-C5V6
3204 10K
7215 BC547B
L16
7216 SOC1012T
3215 560R
3218 220K
3219 33K
6217 BZX79-C18
3217 220R
7217 STP16NE06
2217 120n
L17
L18
Hdefl-Lin
A1-4
Hdefl-2
A1-5
POWERSAVING
FILAMENT-PROT
A1
A4
(FILAMENT-SUPPLY)
7340 STP16NE06
0049
0055
+13D
+11V
9340
9341
3348 1K5
3349 1K2
3340 10R
2340 100u
3343 10K
3341 1K
3342 1K
7341 BC547B
7342 TL431CLP
6340 BZX79-C18
2341 3n3
3344 10R
3345 1K5
3346 820R
3347 10R
3350 120R
6341 BZX79-C6V8
L14
3353 120R
7344 BC557B
3354 1K5
3355 1K
DC-filament
A1-6
GND
CL 16532149_002.eps
171201

[1] NOTE: CIRCUITRY NOT IN USE IN THIS MG3.2E-SET, THERE FORE NO WAVEFORMS AVAILABLE.

Large Signal Panel: Frame Deflection


A3 FRAME DEFLECTION
VFB
3614 1K
+13V-LOT
13V1 6617 -5V6 BYD33D
9609 *
3609 RES
2609 RES
2619 22u
2618 100n
13V1 6614 13V2 2615 100u
BYV27-200
9614 *
-5V6
6618
BZV85-C8V2
9622 *
3630 5K6 RES
-13V5
7600 TDA8177
2 13V1 6 13V2 3
VSUP VSUPO FLYB
FLYBACK GENERATOR
POWER AMPLIFIER
THERMAL PROTECTION
IN- IN+ OUT GND
0V3 0V3 0V -15V 4
F1 F2 F3 F4 F5
VDPOS
VDNEG
2613 470p GND
3613 1K
3610 1K
2612 470p GND
3612 820R GND
5617 90n 0V
2617 220n
6620 BYD33D 27V
3617 1R5
2620 10u
3620 10K
3621 10K
3618 220R
3625 100R
3619 220R
2625 47n
2616 100n GND
-15V-LOT
3611 820R
3604 1R
3601 1R
3602 1R
3603 1R
GND
9621 *
0V
0325
To vertical Deflection coil
200mV / div DC 2ms / div
200mV / div DC 2ms / div
10 V / div DC 2ms / div
1 V / div DC 10µs / div
2 V / div DC 10µs / div
FRAME ROTATION
RES 0326
N.C.
GND
HFB+13V
+13V-LOT
2445 470p RES
3441 330K
-15V-LOT
-15V
13V1
3445 2K2 4V2
7441 BC547B
DAC-HOP
3440 33K
2443 100n GND
1V7 1V7
LM358N 7440-A
3442 220K
13V +13V-LOT
4V2
3V6
F5
-3V
0390
To Frame Rotation coil
0V GND
3447 22R
3V6
7440-B LM358N
-15V 15V
3446 1K 4V2
BC557B 7442
-15V
2444 1u
3444 33K
GND
-15V-LOT
A1 A2 A3 A4
CL 16532149_003.eps
171201

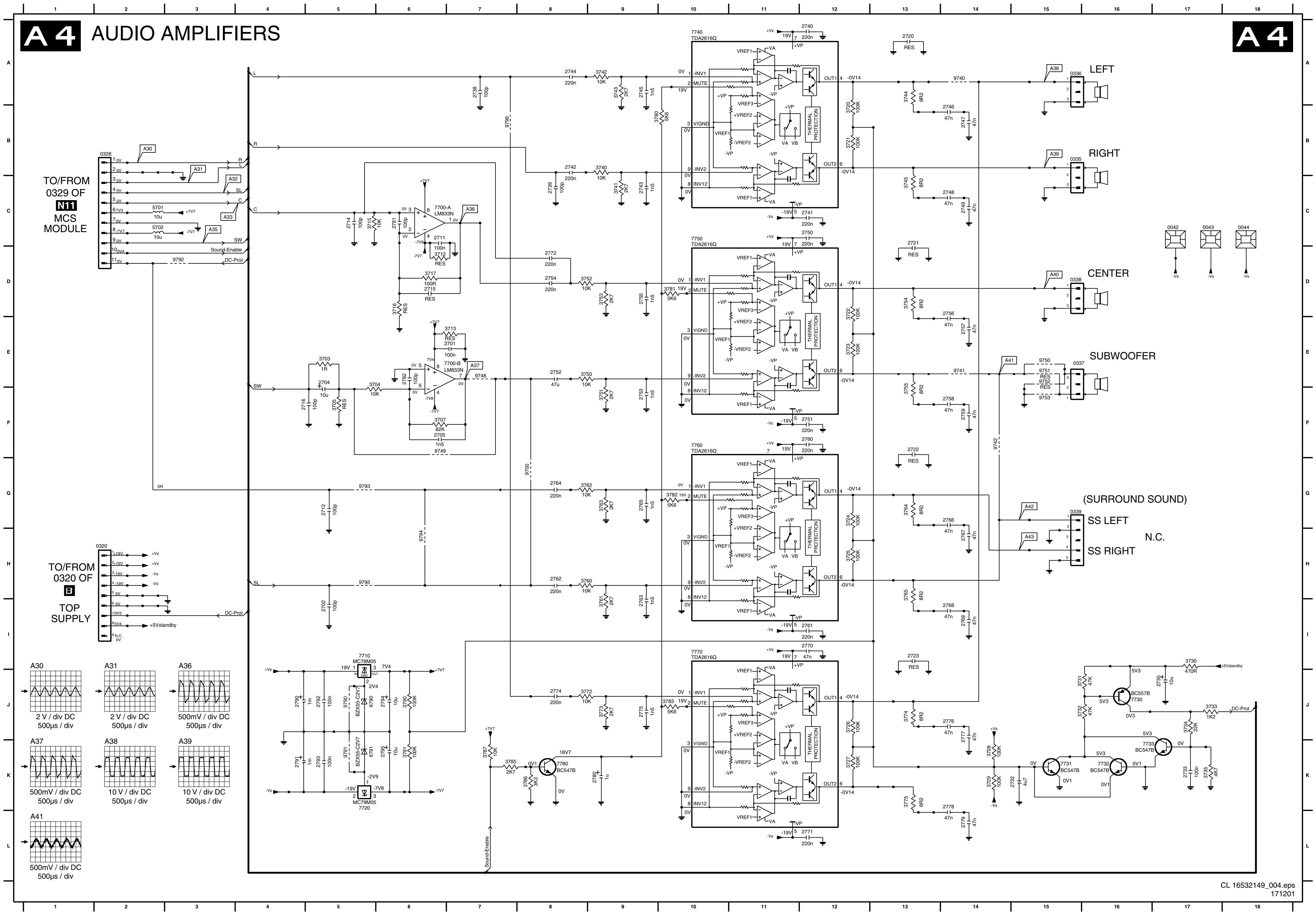
* See diversity list

Diversity table Large Signal Panel [A3]

Item	28"	32"	36"
2625	-	-	47nF
3602	1.5R	1.5R	1R
3618	47R	220R	220R
3619	47R	220R	220R
3625	-	-	100R
6618	BZV85-C10	BZV85-C8V2	-

0325	C6
0326	D6
0390	E6
2443	E2
2444	F2
2445	E2
2609	A5
2612	B3
2613	B3
2615	A4
2616	C4
2617	B4
2618	A3
2619	A2
2620	C5
2625	C6
3440	E2
3441	E3
3442	F3
3444	F3
3445	E4
3446	F4
3447	E4
3601	C5
3602	C5
3603	C5
3604	C4
3609	A5
3610	B2
3611	C4
3612	C2
3613	B2
3614	A5
3617	C4
3618	B5
3619	C5
3620	C5
3621	C5
3625	B6
3630	A4
5617	B5
6614	A4
6617	A4
6618	A4
6620	B5
7440-A	E3
7440-B	F3
7441	E4
7442	F4
7600	B3
9609	A5
9614	A3
9621	C6
9622	A4

Large Signal Panel: Audio Amplifiers


A4
AUDIO AMPLIFIERS
A4
TO/FROM 0329 OF N11 MCS MODULE
TO/FROM 0320 OF B TOP SUPPLY
LEFT
RIGHT
CENTER
SUBWOOFER
(SURROUND SOUND)
SS LEFT
N.C.
SS RIGHT
7740 TDA2616Q
7750 TDA2616Q
7760 TDA2616Q
7770 TDA2616Q
7700-A LM833N
7700-B LM833N
7710 MC78M05
7720 MC79M05
7780 BC547B
7730 BC557B
7731 BC547B
7732 BC547B
7733 BC547B
THERMAL PROTECTION
Sound-Enable
DC-Prot
+5Vstandby
A30
2 V / div DC
500µs / div
A31
2 V / div DC
500µs / div
A36
500mV / div DC
500µs / div
A37
500mV / div DC
500µs / div
A38
10 V / div DC
500µs / div
A39
10 V / div DC
500µs / div
A41
500mV / div DC
500µs / div
CL 16532149_004.eps
171201

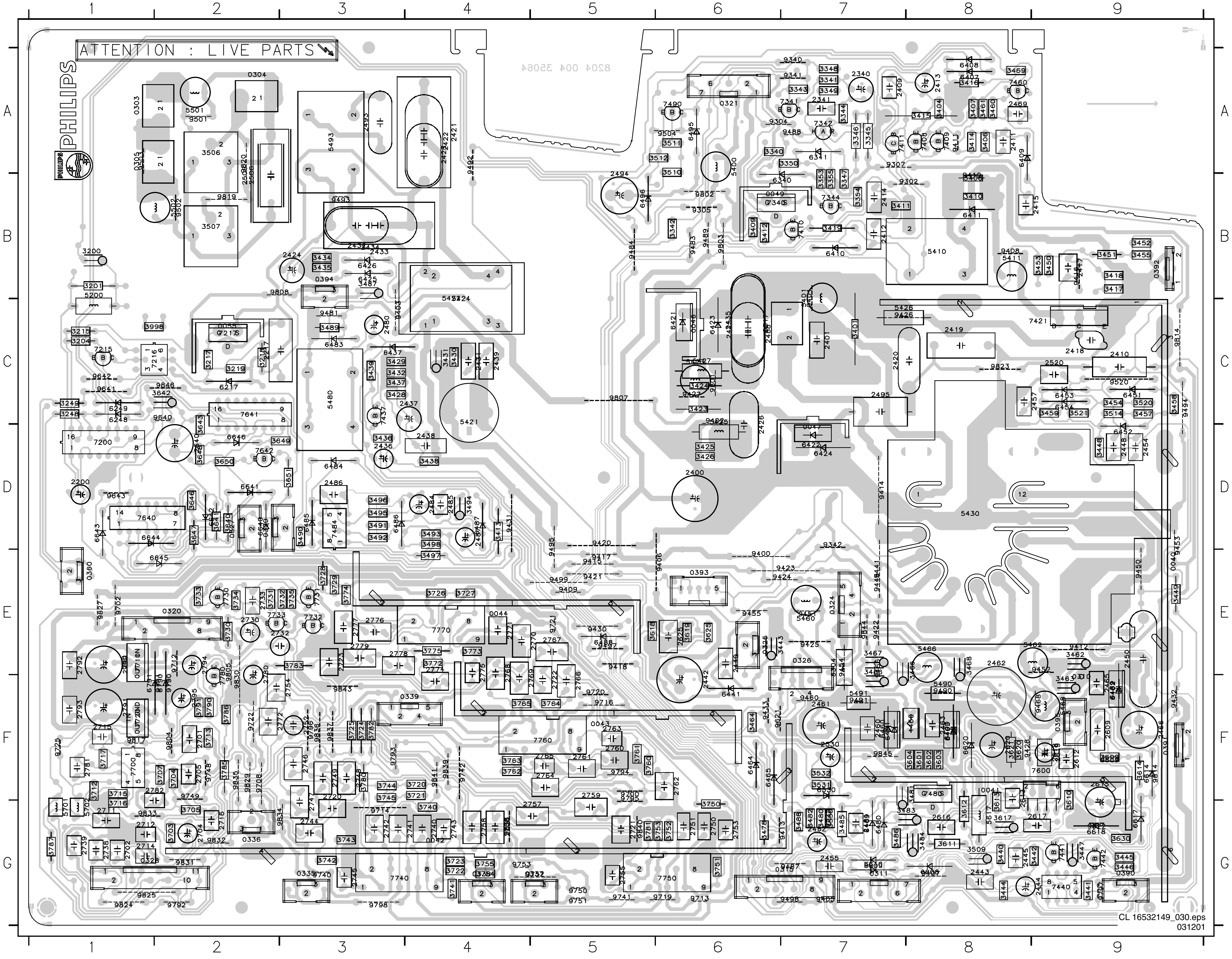
0042	C17
0043	C17
0044	C18
0320	H2
0328	B2
0335	B15
0336	A15
0337	E15
0338	D15
0339	G15
2701	E7
2702	I5
2704	E5
2705	F6
2711	C6
2712	G5
2714	C5
2715	D6
2716	F4
2720	A13
2721	C13
2722	F13
2723	I13
2730	J17
2732	K15
2733	K17
2738	A7
2739	C8
2740	A12
2741	C12
2742	B8
2743	C9
2744	A8
2745	A9
2746	B14
2747	B14
2748	C14
2749	C14
2750	C12
2751	F12
2752	E8
2753	F9
2754	D8
2755	D9
2756	D14
2757	E14
2758	F14
2759	F14
2760	F12
2761	I12
2762	H8
2763	I9
2764	G8
2765	G9
2766	G14
2767	H14
2768	I14
2769	I14
2770	I12
2771	L12
2772	D8
2774	J8
2775	J9
2776	J14
2777	J14
2778	K14
2779	L14
2780	K9
2781	C6
2782	E6
2790	J4
2791	K4
2792	J5
2793	K5
2794	J6
2795	K6
3703	E5
3704	E5
3705	F5
3707	F6
3712	D6
3713	E7
3715	C5
3716	D6
3717	D6
3720	B12
3721	B12
3722	D12
3723	E12
3724	G12
3725	H12
3726	J12
3727	K12
3728	K14
3729	K14
3730	I17
3731	J16
3732	J16
3733	J17
3734	J17
3735	K17
3740	B9
3741	C9
3742	A9
3743	A9
3744	A13
3745	C13
3750	E8
3751	F9
3752	D8
3753	D9
3754	D13
3755	F13
3760	H8
3761	I9
3762	G8
3763	G9
3764	G13
3765	H13
3772	J8
3773	J9
3774	J13
3775	K13
3780	B10
3781	D10
3782	G10
3783	J10
3785	K7
3786	K8
3787	K7
3790	J6
3791	K6
5701	C2
5702	C2
6790	J5
6791	K5
7700-A	C6
7700-B	E6
7710	I5
7720	K5
7730	J16
7731	K15
7732	K16
7733	K17
7740	A10
7750	C10
7760	F10
7770	I10
7780	K8
9700	G8
9740	A14
9741	E14
9742	F14
9748	E7
9749	F6
9750	E15
9751	E15
9752	E15
9753	F15
9790	J5
9791	K5
9792	D3
9793	G5
9794	H6
9795	H5
9796	B7

Large Signal Panel [A4]
(for readability)

Item	Corded	Cordless
0328	4822 267 10981	4822 267 10962
0339	4822 267 10971	-
2702	4,7nF	-
2705	150pF	100nF
2712	4,7nF	-
2742	47nF	220nF
2743	680pF	1,5nF
2744	47nF	-
2752	1 F	-
2753	1,5nF	330nF
2754	150nF	220nF
2755	1,5nF	680pF
2761	220nF	220nF
2762	1 F	1 F
2763	1,5nF	1,5nF
2764	1 F	-
2765	1,5nF	1,5nF
2766	47nF	47nF
2767	47nF	47nF
2768	47nF	47nF
2769	47nF	47nF
2770	-	47nF
2771	-	220nF
2774	-	220nF
2775	-	1,5nF
2776	-	47nF
2777	-	47nF
2778	-	47nF
2779	-	47nF
3700	1k	-
3701	330E	-
3707	15k	-
3707	-	8k2
3710	1k	-
3711	330E	-
3715	15k	10k
3716	1k	-
3717	1k8	100R
3720	100k	-
3723	100k	-
3724	47k	100k
3725	47k	-
3726	-	100k
3741	33k	820R
3742	470R	-
3743	33k	-
3750	3k9	-
3751	56k	-
3752	470R	3k3
3753	6k8	1k8
3760	-	22k
3760	470R	-
3761	6k8	3k9
3762	470R	-
3763	6k8	-
3764	8R2	8R2
3765	8R2	8R2
3772	-	470R
3773	-	820R
3774	-	8R2
3775	-	8R2
3782	5k6	5k6
3783	-	5k6
7760	TDA2616Q/N1	TDA2616Q/N1
7770	-	TDA2616Q/N1
9700	-	Jumper
9707	-	Jumper
9710	Jumper	-
9716	Jumper	Jumper
9720	Jumper	Jumper
9724	Jumper	Jumper
9740	Jumper	-

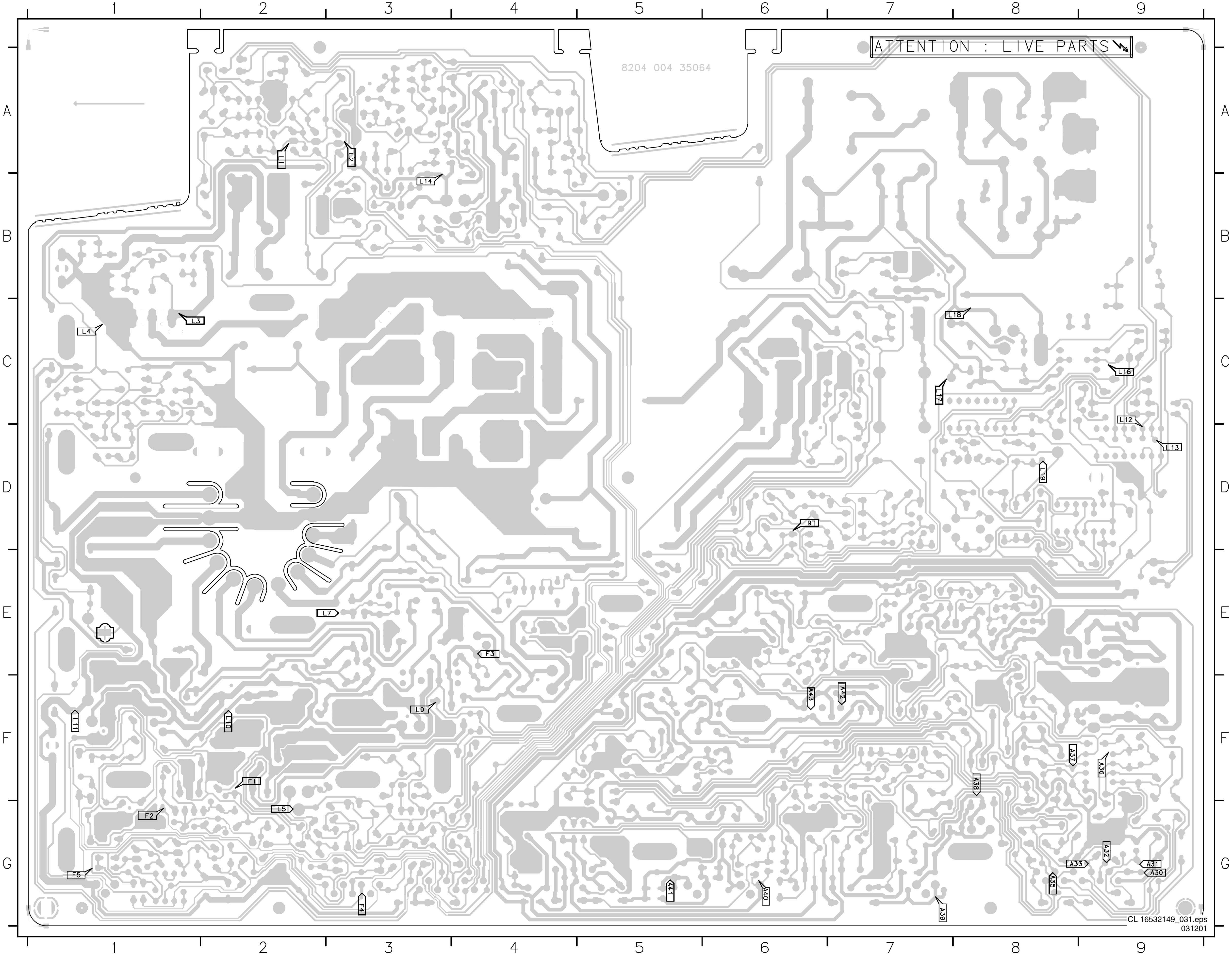
Layout Large Signal Panel (Top View)

0040	E9
0041	F7
0042	G5
0043	F4
0044	E4
0046	B6
0047	C7
0049	B6
0055	C2
0303	A1
0304	A2
0305	A1
0310	E9
0311	G7
0315	G6
0317	B7
0320	E2
0321	A6
0324	E7
0325	E6
0326	E7
0327	E2
0328	G1
0329	D3
0335	G3
0336	G2
0337	G5
0338	G4
0339	F4
0360	E1
0390	G9
0391	F9
0392	B9
0393	E6
0394	C3
0395	F9
1460	F8
2200	D1
2217	C3
2340	A7
2341	A7
2400	D6
2401	C7
2409	A7
2410	C9
2411	A8
2412	B7
2413	A8
2414	B7
2415	B8
2417	B9
2418	C9
2419	C8
2420	C7
2421	A4
2422	A4
2423	A4
2424	B2
2425	C6
2426	D6
2431	C4
2432	B3
2433	B4
2434	B4
2435	B6
2436	D3
2437	C4
2438	D4
2439	C4
2440	E6
2442	F5
2443	G8
2444	G8
2445	G8
2448	D9
2450	E9
2454	D9
2455	G7
2457	C9
2460	F7
2461	F7
2462	E8
2463	F8
2465	F9
2466	F9
2469	A8
2480	C3
2481	G7
2482	G7
2484	D4
2485	D4
2486	D3
2487	D4
2488	C6
2493	A3
2494	B5
2495	C7
2506	A2
2509	B2
2520	C9
2530	F7
2609	F9
2612	F9
2613	F8
2615	G9
2616	G8
2617	G9
2618	F9
2619	F9
2620	F8
2625	E6
2640	D2
2701	F2
2702	G1
2704	G2
2705	F2
2711	G1
2712	G1
2714	G1
2715	F1
2716	G2
2720	G3
2721	G5
2722	F5
2723	E3
2730	E2
2732	E2
2733	E2
2738	G1
2739	G1
2740	G4
2741	G4
2742	G3
2743	G4
2744	G3
2745	G3
2746	F3
2747	F3
2748	F3
2749	F3
2750	G6
2751	G6
2752	F3
2753	G6
2754	F3
2755	G5
2756	G4
2757	G5
2758	G4
2759	F5
2760	F5
2761	F5
2762	F6
2763	F5
2764	F4
2765	F5
2766	F5
2767	E5
2768	F4
2769	F5
2770	E5
2771	E4
2772	F2
2774	F4
2775	E4
2776	E3
2777	E3
2778	F3
2779	E3
2780	F2
2781	F1
2782	F2
2790	E1
2791	F1
2792	E1
2793	F1
2794	E2
2795	F2
3200	B1
3201	B1
3204	C1
3215	C1
3217	C2
3218	C2
3219	C2
3248	C1
3249	C1
3340	A6
3341	A7
3342	B6
3343	A7
3344	A7
3345	A7
3346	A7
3347	B7
3348	A7
3349	A7
3350	A6
3353	B7
3354	B7
3355	A7
3401	C7
3404	A8
3406	A8
3407	A8
3408	A8
3409	B6
3410	B8
3411	B7
3412	B6
3413	D4
3414	A8
3415	A8
3416	A8
3417	B9
3418	B9
3419	B7
3423	C6
3424	C6
3425	D6
3426	D6
3428	C4
3429	C3
3430	C4
3431	C4
3432	C4
3434	B3
3435	B3
3436	D3
3437	C4
3438	D4
3439	C3
3440	G8
3441	G9
3442	G9
3443	E7
3444	G8
3445	G9
3446	G9
3447	G9
3448	D9
3449	E9
3450	B9
3451	B9
3452	B9
3453	B9
3454	C9
3455	B9
3457	C9
3458	C9
3459	C9
3460	A8
3461	A8
3462	E9
3463	F9
3464	F6
3465	E7
3466	F7
3467	E7
3468	E8
3469	A8
3478	G6
3480	G7
3481	F7
3482	G7
3483	G8
3484	G8
3485	G7
3486	G7
3487	B3
3488	F7
3489	C3
3490	D3
3491	D3
3492	D3
3493	D4
3494	D4
3495	D3
3496	D3
3497	E4
3498	E4
3506	A2
3507	B2
3509	G8
3510	A6
3511	A6
3512	A6
3514	C9
3520	C9
3521	C9
3530	G7
3531	F7
3532	F7
3601	F8
3602	F8
3603	F8
3604	F7
3609	F9
3610	F9
3611	G8
3612	G8
3613	G8
3614	F9
3617	G8
3618	E5
3619	E6
3620	F8
3621	F8
3625	E6
3630	G9
3640	D2
3641	E2
3642	C2
3643	C2
3646	D2
3647	D2
3648	D2
3649	D3
3650	D2
3651	D3
3703	G2
3704	F2
3705	G2
3707	F2
3712	F1
3713	F2
3715	F1
3716	G1
3717	F1
3720	F4
3721	G4
3722	G4
3723	G4
3724	F3
3725	F3
3726	E4
3727	E4
3728	E3
3729	E3
3730	E2
3731	E2
3732	E3
3733	E2
3734	E2
3735	E3
3740	G4
3741	G4
3742	G3
3743	G3
3744	F3
3745	F3
3750	F6
3751	G6
3752	G6
3753	G6
3754	G4
3755	G4
3760	F5
3761	F5
3762	F4
3763	F4
3764	F5
3765	F4
3772	E4
3773	E4
3774	E3
3775	E3
3780	F3
3781	G5
3782	F3
3783	E3
3785	F2
3786	F2
3787	G1
3790	F2
3791	F2
3998	C1
5200	B1
5304	E7
5400	A6
5401	B7
5410	B8
5411	B8
5421	D4
5422	B4
5423	C6
5424	B4
5425	D6
5426	C7
5427	C6
5430	E8
5460	E7
5462	E8
5466	E8
5468	F8
5480	C3
5490	F8
5491	F7
5493	A3
5501	A2
5502	B1
5617	G8
5701	G1
5702	G1
6217	C2
6248	C1
6249	C1
6340	A6
6341	A7
6407	A8
6408	A8
6409	A9
6410	B7
6411	B8
6421	C6
6422	C7
6423	C6
6424	D7
6425	B3
6426	B3
6437	C3
6441	F6
6451	C9
6452	C9
6453	C9
6454	C9
6460	F7
6462	F9
6463	F8
6464	F6
6465	F6
6469	G7
6480	G7
6483	C3
6484	D3
6485	D3
6486	D4
6487	D4
6488	E5
6489	F9
6490	F8
6491	F7
6495	A6
6496	B5
6530	F7
6608	G8
6609	G7
6610	G7
6614	F9
6617	G9
6618	G9
6620	F8
6640	E2
6641	D2
6642	D2
6643	D1
6644	E1
6645	E2
6646	D2
6790	F2
6791	F2
7200	C1
7215	C1
7216	C1
7217	C2
7340	B7
7341	A7
7342	A7
7344	B7
7408	A7
7409	A8
7410	B7
7411	A7
7421	C9
7437	C3
7440	G9
7441	G9
7442	G9
7460	A8
7480	G8
7484	D3
7490	A6
7600	G9
7640	D1
7641	C2
7642	D2
7700	F1
7710	F1
7720	F1
7730	E2
7731	E3
7732	E3
7733	E2
7740	G4
7750	G5
7760	F5
7770	E4
7780	E2
9302	B8
9304	A6
9305	B6
9307	A7
9340	A7
9341	A7
9342	D7
9400	E6
9401	B7
9402	C6
9403	C3
9405	G7
9406	E5
9407	G8
9408	B8
9409	E5
9410	A8
9411	A8
9412	E9
9413	G6
9414	D7
9415	E5
9416	B9
9417	E5
9418	E5
9420	D5
9421	E5
9422	E7
9423	E7
9424	E6
9425	E7
9426	C7
9427	C6
9428	F8
9430	E5
9431	D4
9432	F9
9433	F6
9441	E7
9445	E7
9450	E9
9451	E7
9452	F9
9453	D9
9454	E7
9455	E6
9460	F7
9466	E7
9468	F9
9481	C3
9483	B6
9484	B5
9487	G7
9488	A7
9489	B6
9490	F8
9491	F7
9492	A4
9493	B3
9494	D9
9495	D5
9497	E5
9498	G7
9499	E5
9501	A2
9502	B2
9503	B1
9504	A6
9520	C9
9525	G7
9609	F9
9614	F9
9621	F6
9622	G9
9640	C2
9641	C1
9642	C1
9643	D1
9700	F5
9702	E1
9708	F2
9712	E2
9713	G6
9714	G3
9716	F5
9719	G6
9720	F5
9721	E5
9722	F2
9725	F1
9740	G3
9741	G5
9742	F4
9748	F2
9749	F2
9750	G5
9751	G5
9752	G5
9753	G4
9790	E2
9791	E2
9792	G2
9793	F3
9794	F5
9795	F5
9796	F3
9797	G9
9798	G3
9801	C6
9802	B6
9803	B6
9804	F2
9805	E2
9807	C5
9808	B2
9814	C9
9817	F2
9819	B2
9820	A2
9823	C8
9824	G1
9825	G1
9827	E1
9829	F2
9830	E2
9831	G2
9832	G2
9833	G1
9834	G3
9835	F2
9836	F3
9837	F3
9838	G4
9839	F4
9840	G5
9841	F4
9843	F3
9844	E7
9845	F7
9846	C2



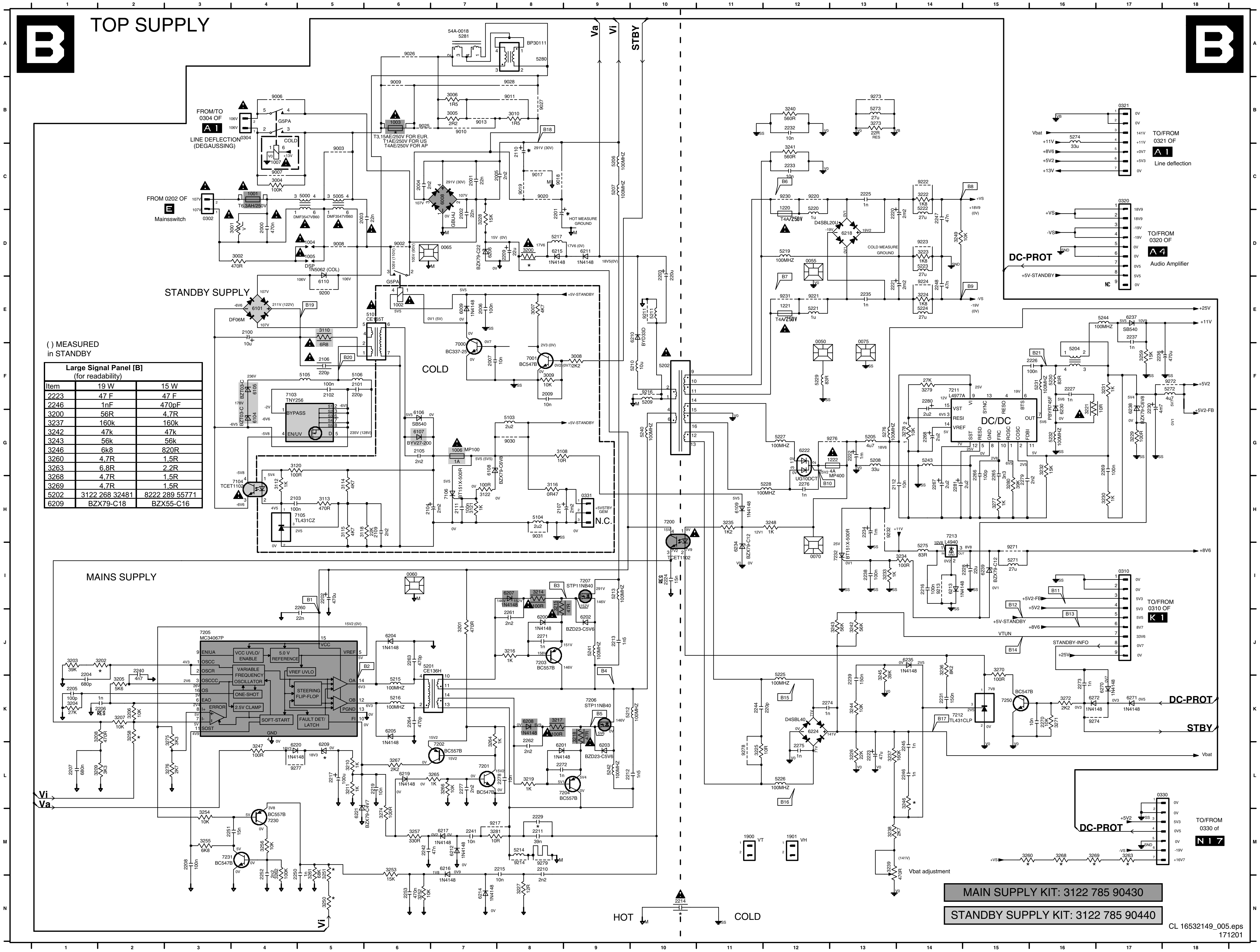
CL 16532149_030.eps
031201

Layout Large Signal Panel (Bottom View)


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
G
ATTENTION : LIVE PARTS
8204 004 35064
L1
L2
L14
L3
L4
L18
L16
L17
L12
L13
L19
L6
L7
F3
L9
L10
L11
F1
F2
L5
F5
F4
A43
A42
A37
A36
A38
A32
A33
A31
A30
A35
A41
A40
A39

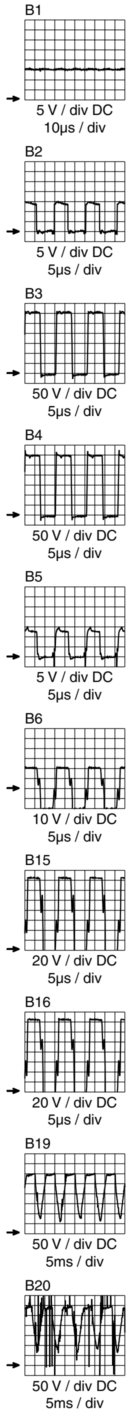
CL 16532149_031.eps
031201

Top Supply

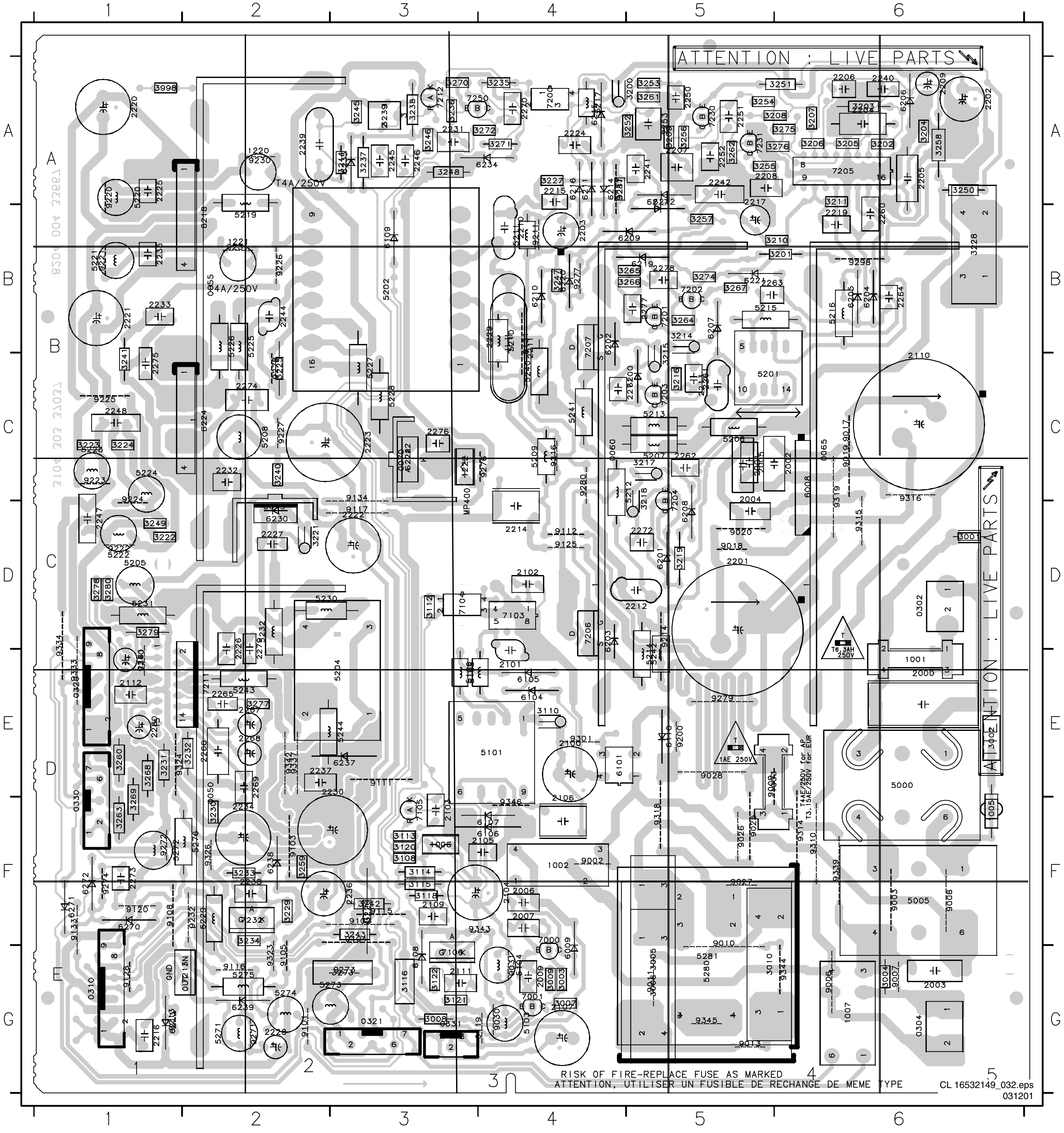

B
TOP SUPPLY
Va
Vi
STBY
FROM/TO
0304 OF
A1
LINE DEFLECTION
(DEGAUSSING)
FROM 0202 OF
E
Mainsswitch
T3,15AE/250V FOR EUR.
T1AE/250V FOR US
T4AE/250V FOR AP
STANDBY SUPPLY
( ) MEASURED
in STANDBY
COLD
MAINS SUPPLY
MC34067P
TO/FROM
0321 OF
A1
Line deflection
TO/FROM
0320 OF
A4
Audio Amplifier
DC-PROT
DC/DC
TO/FROM
0310 OF
K1
STBY
Vbat
TO/FROM
0330 of
N17
Vbat adjustment
HOT
COLD
MAIN SUPPLY KIT: 3122 785 90430
STANDBY SUPPLY KIT: 3122 785 90440
CL 16532149_005.eps
171201

Large Signal Panel [B] (for readability)		
Item	19 W	15 W
2223	47 F	47 F
2246	1nF	470pF
3200	56R	4,7R
3237	160k	160k
3242	47k	47k
3243	56k	56k
3246	6k8	820R
3260	4,7R	1,5R
3263	6,8R	2,2R
3268	4,7R	1,5R
3269	4,7R	1,5R
5202	3122 268 32481	8222 289 55771
6209	BZX79-C18	BZX55-C16

0050	F12
0055	D12
0060	I6
0065	D7
0070	I12
0075	F13
0302	D3
0304	B4
0310	I17
0320	C17
0321	B17
0330	L17
0331	H9
1001	C4
1002	E6
1003	B6
1004	D5
1005	D5
1006	G7
1007	C4
1220	C12
1221	E12
1222	G13
1900	M11
1901	M12
2000	D4
2001	C7
2002	D7
2003	D5
2004	C6
2005	C8
2006	E7
2007	F7
2009	F8
2100	E4
2101	F5
2102	F5
2103	H4
2104	H6
2105	G6
2106	F5
2107	H8
2109	H6
2110	C8
2111	H7
2112	H13
2201	D8
2202	I5
2203	D10
2204	K1
2205	K1
2206	K2
2207	L1
2208	M3
2209	D8
2210	M8
2211	M8
2212	L9
2213	J9
2214	N10
2215	M8
2216	I14
2217	L5
2219	L6
2220	D13
2221	E13
2222	G13
2223	L13
2224	I10
2225	C13
2226	F16
2227	F16
2228	I15
2229	M8
2230	F17
2231	K14
2232	B12
2233	C12
2234	H13
2235	E13
2236	F17
2237	E17
2238	I13
2239	K13
2240	J2
2241	M7
2242	M6
2244	K11
2245	L14
2246	L14
2247	D14
2248	E14
2250	M4
2251	M3
2252	M4
2253	N6
2260	J5
2261	J8
2262	L8
2263	J6
2264	K6
2265	G15
2266	G15
2267	H14
2268	G14
2269	G17
2270	K16
2271	J8
2272	L8
2273	K16
2274	K12
2275	L12
2276	H12
2277	L7
2278	L8
2279	H15
2280	F14
2281	H14
3001	D4
3002	D4
3003	F8
3004	C4
3005	B7
3006	B7
3007	E8
3008	F9
3009	F8
3010	B8
3108	G8
3110	E5
3112	H4
3113	H5
3114	H5
3115	H5
3116	H8
3118	H5
3120	G4
3121	H7
3122	H7
3200	D8
3201	J7
3202	J2
3203	J1
3204	K1
3205	K2
3206	K2
3207	K2
3208	K1
3209	L1
3210	L5
3211	L5
3214	I8
3215	I8
3216	J8
3217	K8
3218	K9
3219	L8
3221	F16
3222	C14
3223	D14
3224	E14
3225	L11
3226	L13
3227	N8
3228	D7
3229	G17
3230	H17
3231	F17
3232	G16
3233	I13
3234	I14
3235	H11
3236	J14
3237	L13
3238	M13
3239	M13
3240	B12
3241	C12
3242	J13
3243	J13
3244	K13
3245	J13
3246	L14
3247	L4
3248	H12
3249	D14
3250	N5
3251	M5
3252	N6
3253	M6
3254	M3
3255	M3
3256	M4
3257	M6
3258	K2
3259	F17
3260	M15
3261	M5
3262	M4
3263	M17
3264	K7
3265	L7
3266	L7
3267	L6
3268	M16
3269	M16
3270	J15
3271	K16
3272	K16
3273	B13
3274	M6
3275	K3
3276	L3
3277	H15
3278	G14
3279	F14
3280	H15
3281	M7
3998	M15
5000	C5
5005	C5
5101	E6
5103	G8
5104	H8
5105	F5
5106	F5
5201	J6
5202	F10
5204	F16
5205	G13
5206	C9
5207	C9
5208	G13
5209	F10
5210	F10
5211	E10
5212	K9
5213	I9
5214	M8
5215	K6
5216	K6
5217	D8
5219	D12
5220	D12
5221	E12
5222	D14
5223	D14
5224	E14
5225	K12
5226	L12
5227	G12
5228	H12
5229	F12
5230	F16
5231	F16
5232	G16
5240	G10
5241	J9
5242	L9
5243	G14
5244	E17
5271	I15
5272	F18
5273	B13
5274	B16
5275	I14
5276	G13
5280	A8
5281	A7
6008	C7
6009	E7
6101	E4
6104	G4
6105	F4
6106	G6
6107	G6
6108	G7
6109	H11
6110	E5
6200	J8
6201	L8
6202	J9
6203	L9
6204	J6
6205	K6
6206	D7
6207	I8
6208	K8
6209	L5
6210	E10
6211	D9
6212	M7
6213	I14
6214	N7
6215	D8
6216	M7
6217	M7
6218	D13
6219	L6
6220	L4
6221	M5
6222	G12
6224	K12
6230	F16
6234	I11
6235	J14
6237	E17
6238	F17
6239	I15
6270	K17
6271	K17
6272	K16
7000	F7
7001	F8
7103	F4
7104	H4
7105	H4
7106	H7
7200	H10
7201	L7
7202	L7
7203	J8
7204	L8
7205	J3
7206	K9
7207	I9
7211	F14
7212	K15
7213	H14
7230	M4
7231	M4
7232	I13
7250	K15
9002	D6
9003	C5
9006	B4
9007	C4
9008	D5
9009	B6
9010	B7
9011	B8
9013	B7
9017	C8
9018	C8
9019	C8
9020	C8
9025	B6
9026	A6
9027	B8
9028	B8
9030	G8
9031	H8
9200	E5
9211	E10
9213	I14
9214	M8
9216	F10
9217	M7
9220	C12
9221	E12
9222	C14
9223	D14
9224	E14
9230	C12
9231	E12
9232	H13
9271	I15
9272	F18
9273	B13
9274	K16
9276	G13
9277	L4
9278	L11
9279	M8

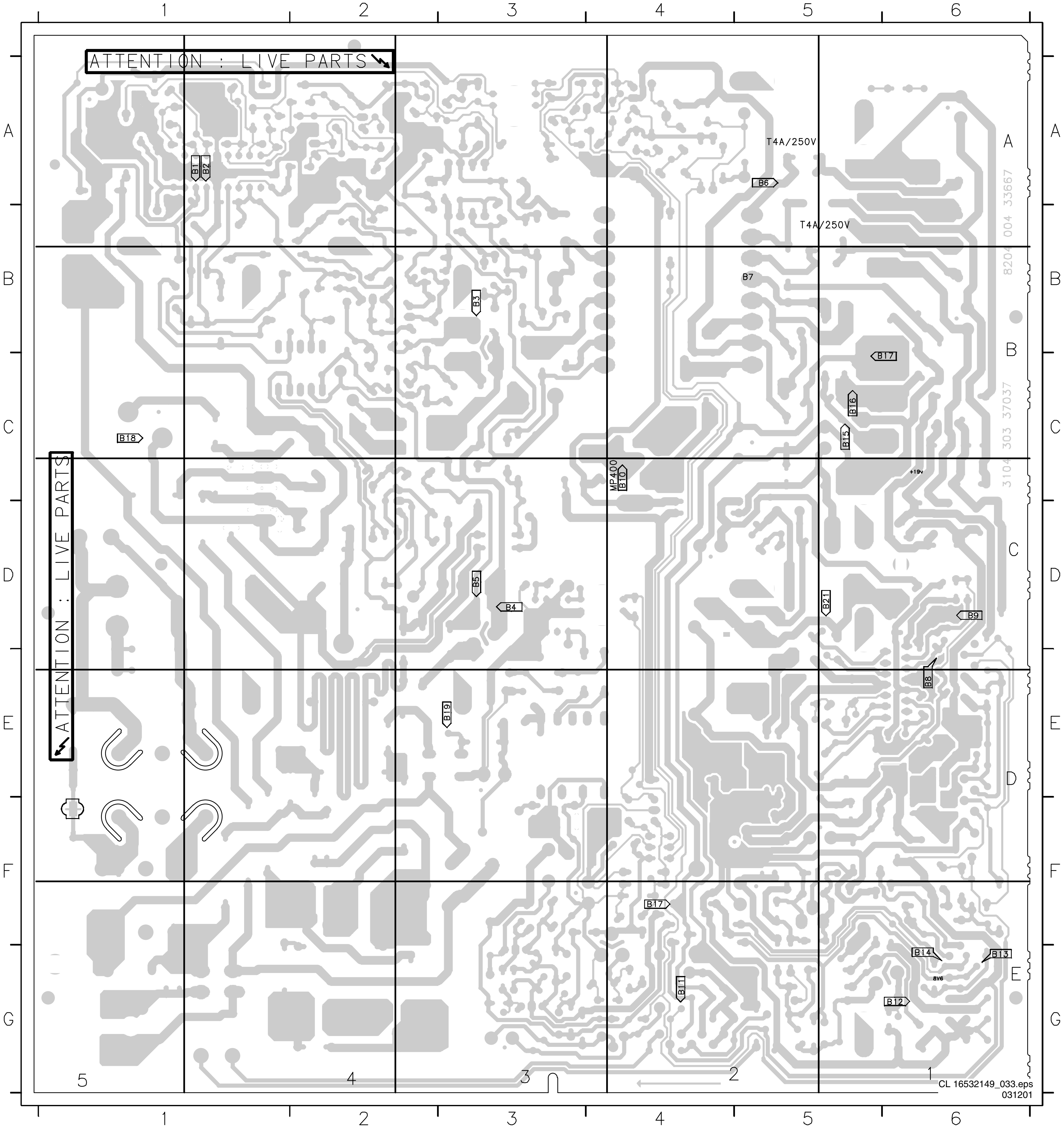


Layout Top Supply (Top View)



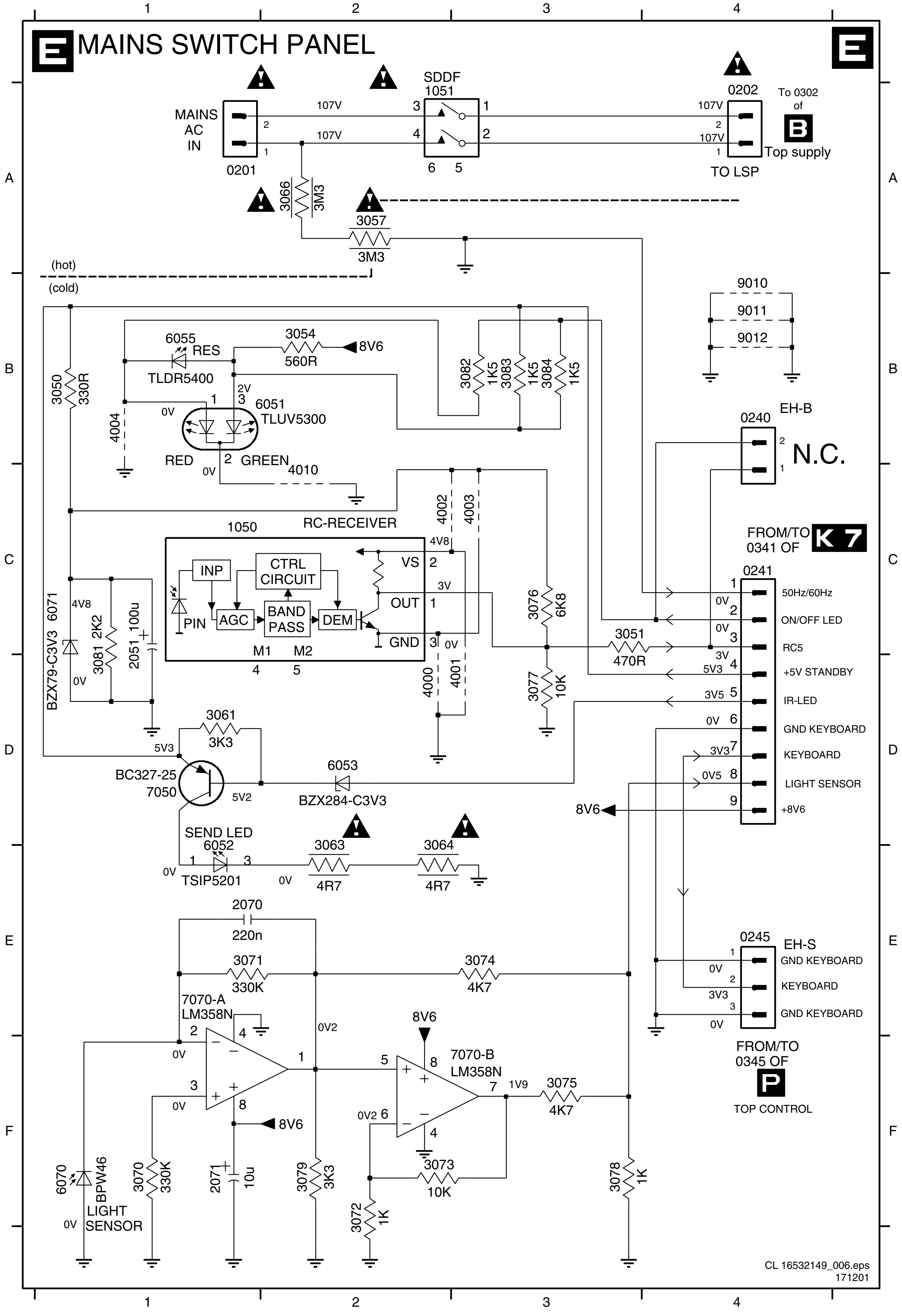
0050	E2	2267	E2	3267	B5	6230	D2	9319	C6
0055	B2	2268	E2	3268	E1	6234	A4	9323	G2
0060	C4	2269	E2	3269	F1	6235	A3	9324	F1
0065	C6	2270	A4	3270	A3	6237	E3	9326	F2
0070	C3	2271	C4	3271	A4	6238	F2	9333	E1
0075	D2	2272	D5	3272	A4	6239	G2	9334	D1
0302	D6	2273	F1	3273	G3	6270	F1	9337	E2
0304	G6	2274	C2	3274	B5	6271	F1	9339	F6
0310	G1	2275	C1	3275	A5	6272	F1	9340	E1
0320	E1	2276	C3	3276	A6	7000	F4	9342	E2
0321	G3	2277	B4	3277	E2	7001	G4	9343	F4
0330	F1	2278	B5	3278	D1	7103	E4	9344	G6
0331	G4	2279	D2	3279	D1	7104	D3	9345	G5
1001	D6	2280	E1	3280	D1	7105	E3	9346	F4
1002	F4	2281	D1	3281	A5	7106	G3		
1003	E6	3001	D6	3998	A1	7200	A4		
1005	F6	3002	E6	5000	E6	7201	B5		
1006	F3	3003	G4	5005	F6	7202	B5		
1007	G6	3004	G6	5101	E3	7203	C5		
1220	A2	3005	G4	5103	G4	7204	C5		
1221	B2	3006	G4	5104	G4	7205	A6		
1222	C3	3007	G4	5105	E4	7206	D4		
2000	E6	3008	G3	5106	E3	7207	C4		
2001	C5	3009	G4	5201	C6	7211	D2		
2002	C5	3010	G6	5202	B2	7212	A3		
2003	G6	3108	F3	5204	E3	7213	G2		
2004	C5	3110	E4	5205	D1	7230	A5		
2005	C5	3112	D3	5206	C5	7231	A5		
2006	F4	3113	F3	5207	C5	7232	F2		
2007	F4	3114	F3	5208	C2	7250	A4		
2009	G4	3115	F3	5209	C4	9002	F4		
2100	E4	3116	G3	5210	C4	9003	F6		
2101	E4	3118	F3	5211	B4	9006	G6		
2102	D4	3120	F3	5212	D4	9007	G6		
2103	F3	3121	G3	5213	C5	9008	F6		
2104	F3	3122	G3	5214	E5	9009	E5		
2105	F4	3200	A4	5215	B5	9010	G5		
2106	F4	3201	B6	5216	B6	9011	G5		
2107	G4	3202	A6	5217	A4	9013	G6		
2109	F3	3203	A6	5219	B2	9017	C6		
2110	C6	3204	A6	5220	A1	9018	D5		
2111	G3	3205	A6	5221	B1	9019	C6		
2112	E1	3206	A6	5222	D1	9020	D5		
2201	D5	3207	A6	5223	C1	9025	F5		
2202	A6	3208	A6	5224	C1	9026	F5		
2203	B4	3209	A5	5225	B2	9027	F5		
2204	A6	3210	B6	5226	B2	9028	E5		
2205	A6	3211	B6	5227	C3	9030	G4		
2206	A6	3214	C5	5228	C3	9031	G4		
2207	A5	3215	C5	5229	F2	9101	G2		
2208	A5	3216	C5	5230	D2	9102	F3		
2209	A6	3217	C5	5231	D1	9103	F2		
2210	B4	3218	C5	5232	D2	9104	G3		
2211	C4	3219	D5	5240	C4	9105	G2		
2212	D5	3221	D2	5241	C4	9108	F1		
2213	C5	3222	D1	5242	E5	9111	E3		
2214	D4	3223	C1	5243	E2	9112	D4		
2215	A4	3224	C1	5244	E2	9115	F3		
2216	G1	3225	C2	5271	G2	9116	G2		
2217	A5	3226	F3	5272	F1	9117	D3		
2219	B6	3227	A4	5273	G3	9119	G3		
2220	A1	3228	B6	5274	G2	9120	F1		
2221	B1	3229	F2	5275	G2	9125	D4		
2222	D3	3230	E2	5276	F2	9128	G1		
2223	C3	3231	E1	5280	G4	9131	B4		
2224	A4	3232	E2	5281	G5	9133	F1		
2225	A1	3233	F2	6008	C6	9134	C3		
2226	D2	3234	G2	6009	G4	9200	E5		
2227	D2	3235	A4	6101	E4	9211	B4		
2228	G2	3236	A3	6104	E4	9213	G1		
2229	B4	3237	A3	6105	E4	9214	D5		
2230	E3	3238	A3	6106	F4	9216	C4		
2231	A3	3239	A3	6107	F4	9217	A4		
2232	C2	3240	C2	6108	G3	9220	A1		
2233	B1	3241	C1	6109	B3	9221	B1		
2234	F2	3242	F3	6110	E5	9222	D1		
2235	B1	3243	F2	6200	C5	9223	C1		
2236	F3	3244	A3	6201	D5	9224	D1		
2237	E2	3245	A3	6202	B4	9225	C1		
2238	F2	3246	A3	6203	D4	9226	B2		
2239	A3	3247	B4	6204	B6	9227	C2		
2240	A6	3248	A3	6205	B6	9230	A2		
2241	A5	3249	D1	6206	A6	9231	B2		
2242	B5	3250	A6	6207	B5	9232	F1		
2244	B2	3251	A6	6208	D5	9271	G2		
2245	A3	3252	A4	6209	B5	9272	F1		
2246	A3	3253	A5	6210	B4	9273	G3		
2247	D1	3254	A5	6211	B4	9274	F1		
2248	C1	3255	A5	6212	A5	9276	C4		
2250	A5	3256	A5	6213	G1	9277	B4		
2251	A5	3257	B5	6214	A4	9278	C2		
2252	A5	3258	A6	6215	A4	9279	E5		
2253	A5	3259	F2	6216	B4	9280	C4		
2260	B6	3260	E1	6217	B5	9298	B6		
2261	C5	3261	A5	6218	B1	9301	E4		
2262	C5	3262	A5	6219	B5	9310	F6		
2263	B5	3263	F1	6220	B4	9314	F6		
2264	B6	3264	B5	6221	B5	9315	D6		
2265	E2	3265	B5	6222	C3	9316	D6		
2266	E2	3266	B4	6224	C1	9318	F5		

Layout Top Supply (Top View)


1
2
3
4
5
6
A
B
C
D
E
F
G
ATTENTION : LIVE PARTS
ATTENTION : LIVE PARTS
B1
B2
B3
B4
B5
B6
B7
B8
B9
B10
B11
B12
B13
B14
B15
B16
B17
B17
B18
B19
B21
MP400
T4A/250V
T4A/250V
+19v
8V6
8204 004 33667
3104 303 37037
A
B
C
D
E
5
4
3
2
1

CL 16532149_033.eps
031201

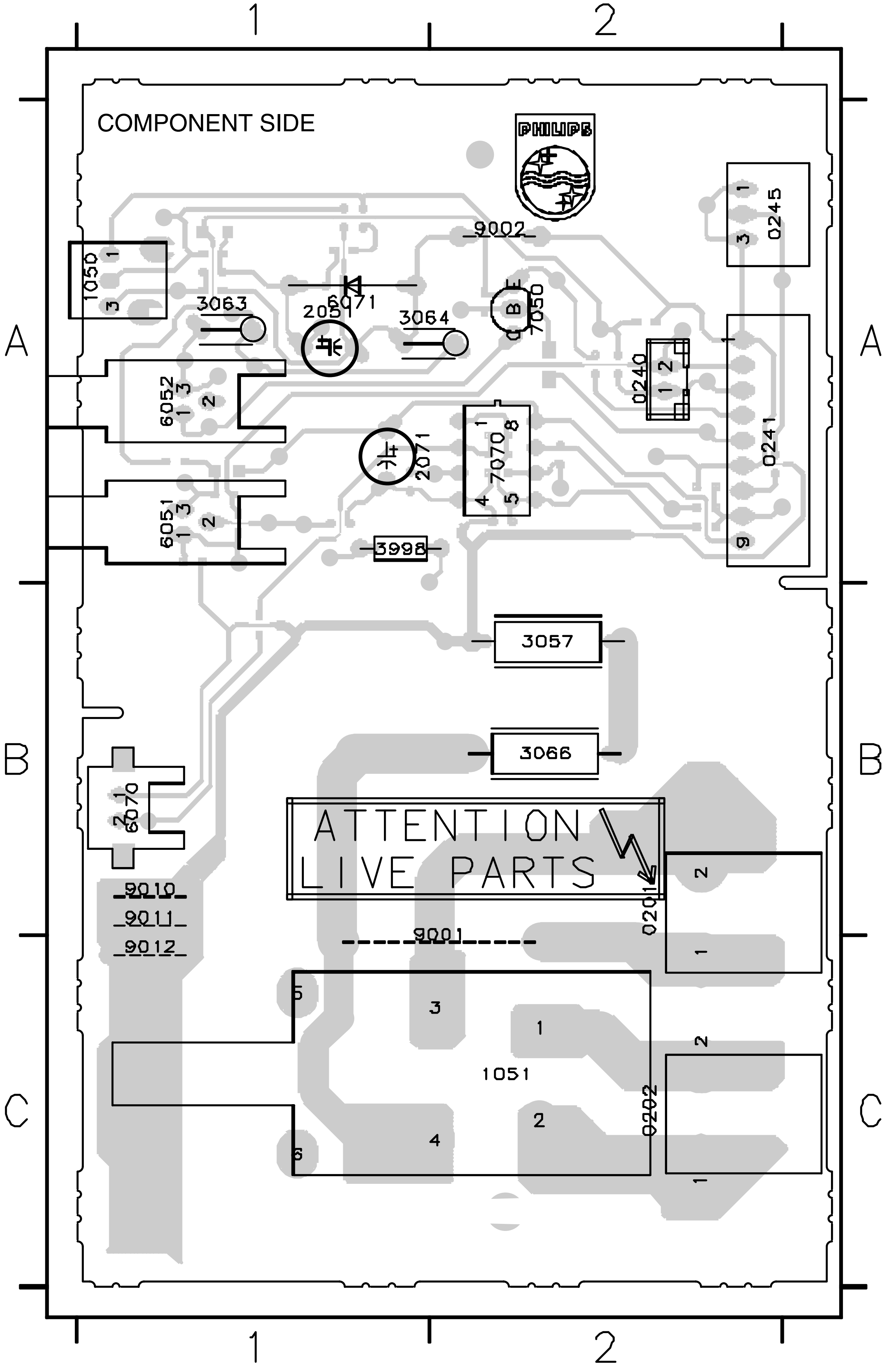
Mains Switch Panel


E MAINS SWITCH PANEL
MAINS AC IN
0201
SDDF 1051
107V
0202
To 0302 of B Top supply
TO LSP
3066 3M3
3057 3M3
(hot)
(cold)
9010
9011
9012
6055 RES
TLDR5400
3054 560R
8V6
3082 1K5
3083 1K5
3084 1K5
3050 330R
4004
6051 TLUV5300
RED
GREEN
4010
EH-B
0240
N.C.
1050 RC-RECEIVER
4002
4003
INP
CTRL CIRCUIT
AGC
BAND PASS
DEM
PIN
VS
OUT
GND
M1
M2
4V8
3V
FROM/TO 0341 OF K 7
0241
50Hz/60Hz
ON/OFF LED
RC5
+5V STANDBY
IR-LED
GND KEYBOARD
KEYBOARD
LIGHT SENSOR
+8V6
3076 6K8
3051 470R
3077 10K
4000
4001
BZX79-C3V3 6071
3081 2K2
2051 100u
3061 3K3
BC327-25 7050
6053 BZX284-C3V3
SEND LED 6052
TSIP5201
3063 4R7
3064 4R7
8V6
2070 220n
3071 330K
3074 4K7
0245 EH-S
GND KEYBOARD
KEYBOARD
GND KEYBOARD
7070-A LM358N
7070-B LM358N
3075 4K7
3073 10K
3072 1K
3078 1K
FROM/TO 0345 OF P TOP CONTROL
6070 BPW46 LIGHT SENSOR
3070 330K
2071 10u
3079 3K3
CL 16532149_006.eps
171201

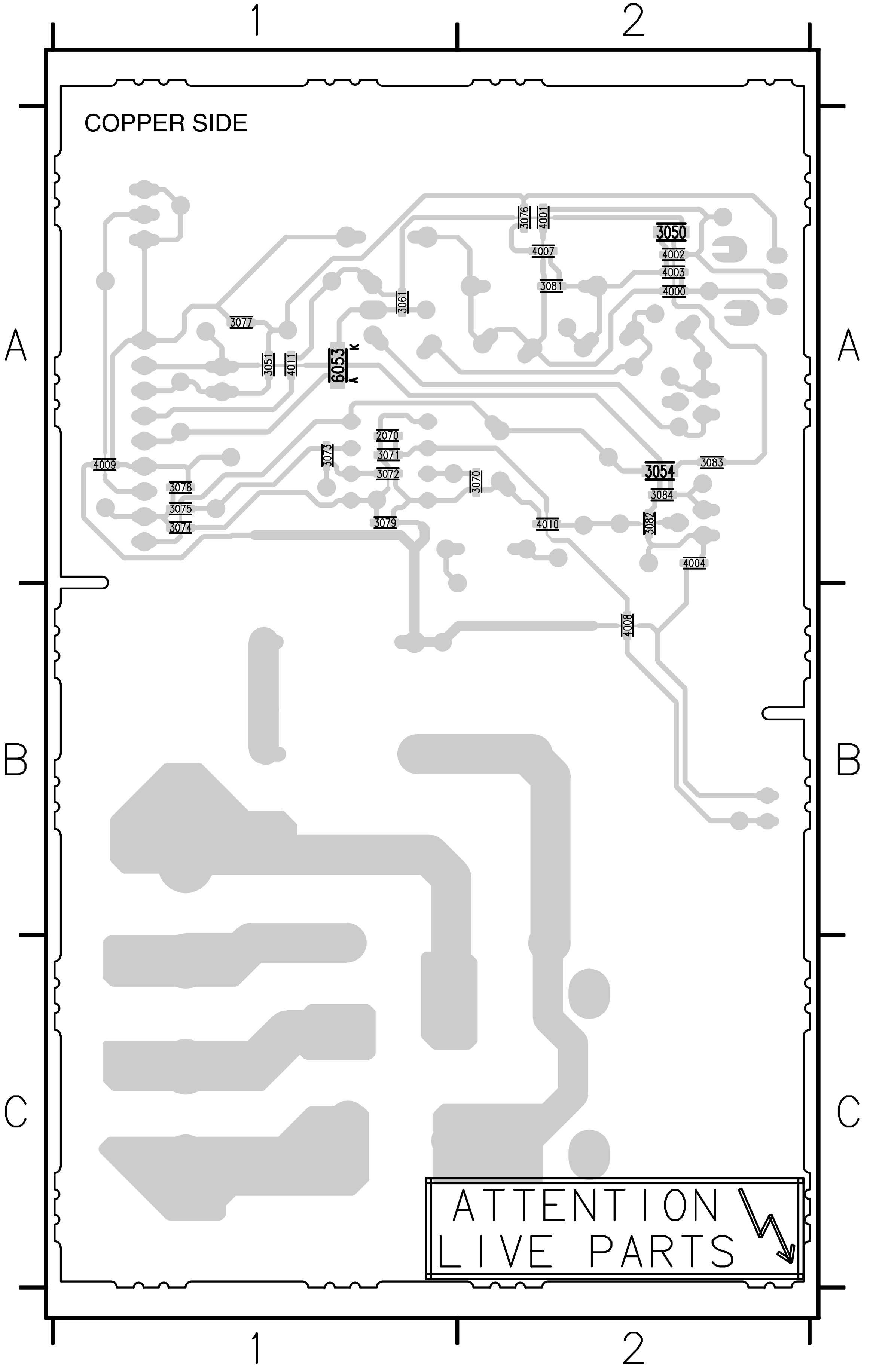
0201	A1
0202	A4
0240	B4
0241	C4
0245	E4
1050	C1
1051	A2
2051	C1
2070	E1
2071	F1
3050	B1
3051	C3
3054	B2
3057	A2
3061	D1
3063	E2
3064	E2
3066	A2
3070	F1
3071	E1
3072	F2
3073	F2
3074	E3
3075	F3
3076	C3
3077	D3
3078	F3
3079	F2
3081	D1
3082	B3
3083	B3
3084	B3
3998	F4
4000	D2
4001	D3
4002	C2
4003	C3
4004	B1
4010	C2
6051	B1
6052	E1
6053	D2
6055	B1
6070	F1
6071	C1
7050	D1
7070-A	E1
7070-B	F2
9010	B4
9011	B4
9012	B4

Personal Notes:

Layout Mains Switch Panel


1
2
A
B
C
COMPONENT SIDE
PHILIPS
1050
3063
2051
6071
3064
7050
C B E
9002
0245
0240
0241
6052
6051
2071
7070
3998
3057
3066
6070
ATTENTION
LIVE PARTS
0201
9010
9011
9012
9001
1051
0202

0201	B2
0202	C2
0240	A2
0241	A2
0245	A2
1050	A1
1051	C2
2051	A1
2071	A1
3057	B2
3063	A1
3064	A2
3066	B2
3998	A1
6051	A1
6052	A1
6070	B1
6071	A1
7050	A2
7070	A2
9001	B2
9002	A2
9010	B1
9011	B1
9012	C1

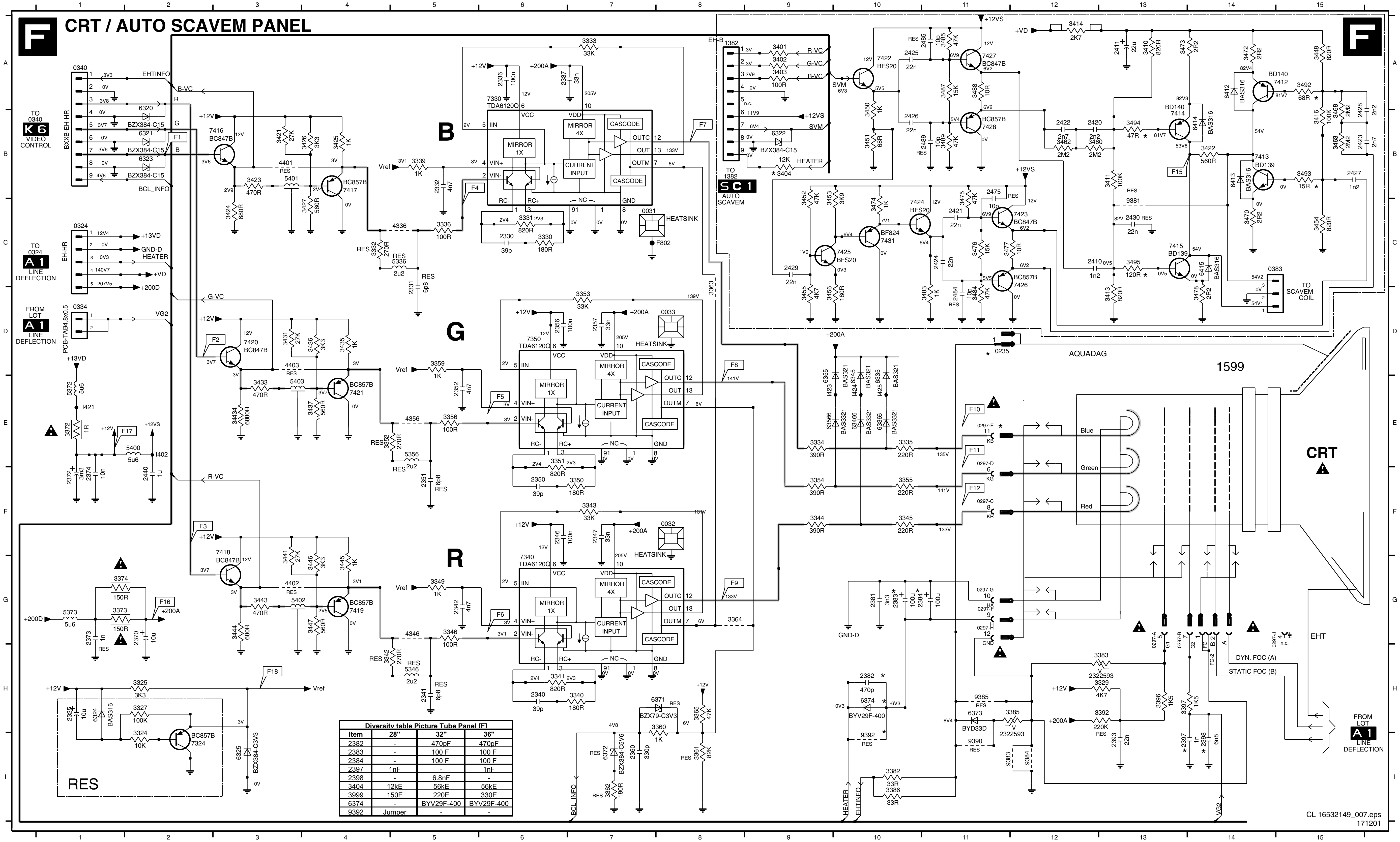

1
2
A
B
C
COPPER SIDE
3076
4001
3050
4002
4003
4000
4007
3081
3061
3077
3051
4011
6053
2070
3071
3072
3073
4009
3078
3075
3074
3079
3070
4010
3054
3083
3084
3082
4004
4008
ATTENTION
LIVE PARTS

2070	A1
3050	A2
3051	A1
3054	A2
3061	A1
3070	A2
3071	A1
3072	A1
3073	A1
3074	A1
3075	A1
3076	A2
3077	A1
3078	A1
3079	A1
3081	A2
3082	A2
3083	A2
3084	A2
4000	A2
4001	A2
4002	A2
4003	A2
4004	A2
4007	A2
4008	B2
4009	A1
4010	A2
4011	A1
6053	A1

CL 16532149_034.eps
191201

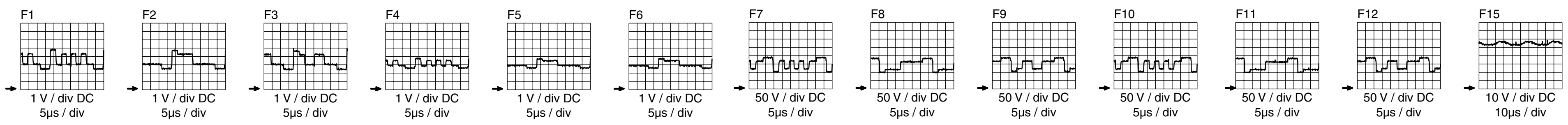
CRT / Auto SCAVEM Panel

0031	C7
0032	F8
0033	D8
0235	D11
0297-A	G13
0297-B	G13
0297-C	F11
0297-D	E11
0297-E	E11
0297-F	G11
0297-G	G11
0297-H	G11
0297-J	G15
0324	C1
0334	D1
0340	A1
0383	C14
1382	A8
2325	H1
2330	C6
2331	D5
2332	B5
2336	A6
2337	A6
2340	H6
2341	H5
2342	G5
2346	F6
2347	F7
2350	F6
2351	F5
2352	E5
2356	D6
2357	D7
2360	I7
2370	G2
2372	F1
2373	G1
2374	F1
2381	G10
2382	H10
2383	G10
2384	G11
2393	I13
2397	I13
2398	I14
2410	C12
2411	A13
2420	B12
2421	C11
2422	B12
2423	B15
2424	C11
2425	A10
2426	B10
2427	B15
2428	B15
2429	C9
2430	C13
2440	F2
2475	B11
2484	D11
2485	A11
2489	B11
3324	I2
3325	H2
3327	H2
3329	H13
3330	C6
3331	C6
3332	C4
3333	A7
3334	E9
3335	E10
3336	C5
3339	B5
3340	H7
3341	H6
3342	H4
3343	F7
3344	F9
3345	F10
3346	G5
3349	G5
3350	F7
3351	E6
3352	E4
3353	D7
3354	F9
3355	F10
3356	E5
3359	D5
3360	H8
3361	I8
3362	I7
3363	D8
3364	G8
3365	H8
3372	E1
3373	G1
3374	G1
3382	I10
3383	H13
3385	H12
3386	I10
3392	H13
3396	H13
3397	H13
3401	A9
3402	A9
3403	A9
3404	B9
3410	A13
3411	B13
3413	D13
3414	A12
3416	B15
3421	B3
3422	B14
3423	B3
3424	C3
3425	B4
3426	B4
3427	C4
3431	D3
3433	E3
3434	E3
3435	D4
3436	D4
3437	E4
3441	G3
3443	G3
3444	G3
3445	G4
3446	G4
3447	G4
3448	A15
3450	B10
3451	B10
3452	C9
3453	C9
3454	C15
3455	D9
3456	D9
3460	B12
3462	B12
3463	B15
3468	B15
3470	C14
3472	A14
3473	A13
3474	C10
3475	C11
3476	C11
3477	C11
3478	D14
3483	D11
3484	D11
3485	A11
3487	A11
3488	A11
3489	B11
3492	A15
3493	B15
3494	B13
3495	C13
3999	I5
4336	C5
4346	G5
4356	E5
4401	B3
4402	G3
4403	D3
5336	C5
5346	H5
5356	E5
5372	E1
5373	G1
5400	E2
5401	B3
5402	G3
5403	E3
6320	B2
6321	B2
6322	B9
6323	B2
6324	H1
6325	I3
6335	E10
6336	E10
6345	E10
6346	E10
6355	E9
6356	E9
6371	H8
6372	I7
6373	H11
6374	H10
6412	A14
6413	B14
6414	B14
6415	C14
7324	I2
7330	A6
7340	G6
7350	D6
7412	A15
7413	B14
7414	B13
7415	C13
7416	B2
7417	B4
7418	F3
7419	G4
7420	D3
7421	E4
7422	A10
7423	C12
7424	C10
7425	C10
7426	C12
7427	A11
7428	B11
7431	C10
9381	C13
9383	I12
9384	I12
9385	H11
9390	I11
9392	I10

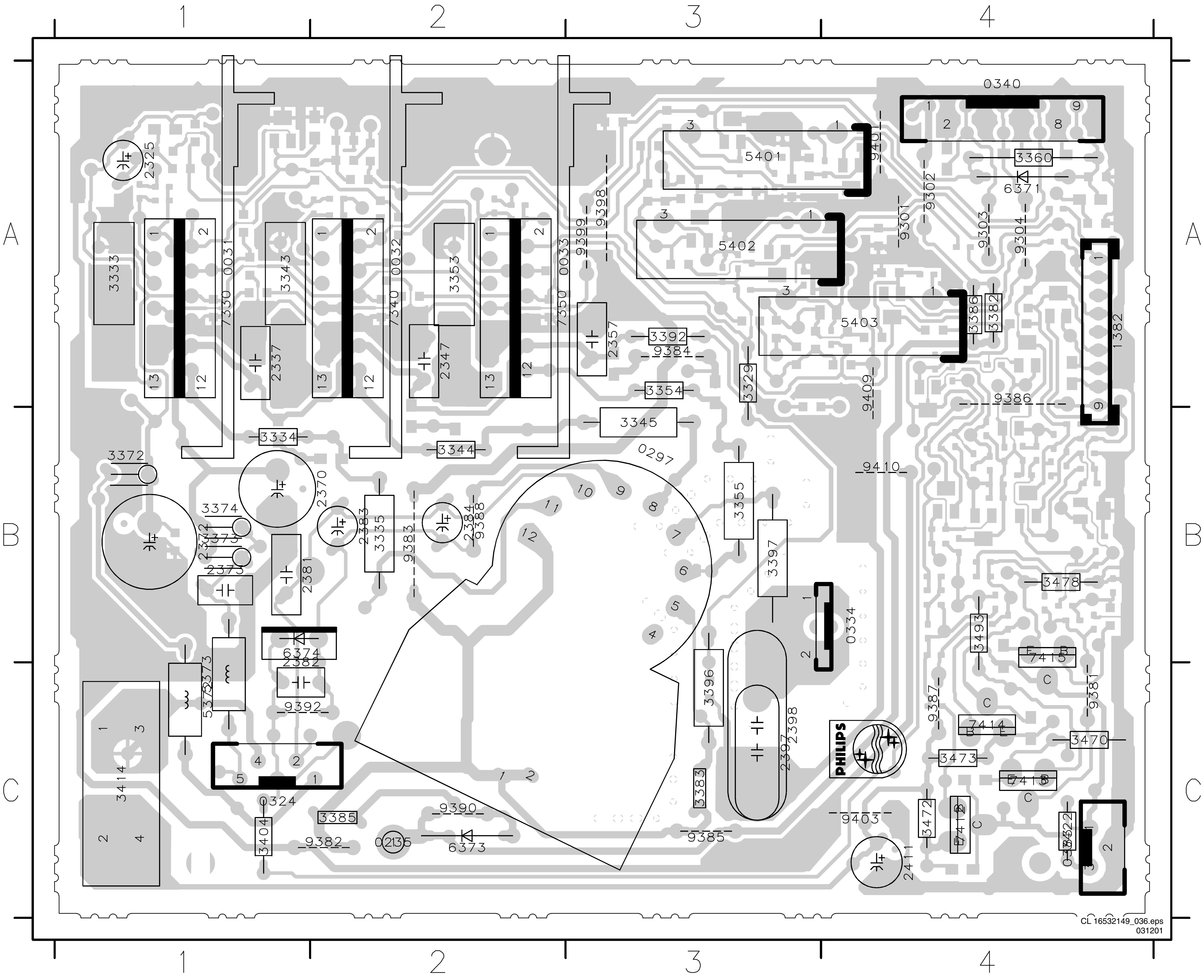

F
CRT / AUTO SCAVEM PANEL
TO 0340 K6 VIDEO CONTROL
0340
BXXB-EH-HR
EHTINFO
B-VC
BCL_INFO
TO 0324 A1 LINE DEFLECTION
0324
EH-HR
+13VD
GND-D
HEATER
+VD
+200D
FROM LOT A1 LINE DEFLECTION
0334
PCB-TAB4.8x0.5
VG2
G-VC
R-VC
B
G
R
7330 TDA6120Q
7350 TDA6120Q
7340 TDA6120Q
MIRROR 1X
MIRROR 4X
CURRENT INPUT
CASCODE
VCC
VDD
IIN
VIN+
VIN-
OUTC
OUT
OUTM
GND
NC
Vref
HEATSINK
7416 BC847B
7417 BC857B
7420 BC847B
7421 BC857B
7418 BC847B
7419 BC857B
7324 BC857B
RES
EH-B
1382
TO 1382 SC1 AUTO SCAVEM
SVM
HEATER
+12VS
7422 BFS20
7427 BC847B
7428 BC857B
7424 BFS20
7431 BF824
7425 BFS20
7423 BC847B
7426 BC857B
7412 BD140
7414 BD140
7413 BD139
7415 BD139
0383
TO SCAVEM COIL
AQUADAG
1599
CRT
Blue
Green
Red
GND-D
DYN. FOC (A)
STATIC FOC (B)
EHT
FROM LOT A1 LINE DEFLECTION
HEATER
EHTINFO
BCL_INFO
VG2
CL 16532149_007.eps
171201

Diversity table Picture Tube Panel [F]			
Item	28"	32"	36"
2382	-	470pF	470pF
2383	-	100 F	100 F
2384	-	100 F	100 F
2397	1nF	-	1nF
2398	-	6.8nF	-
3404	12kE	56kE	56kE
3999	150E	220E	330E
6374	-	BYV29F-400	BYV29F-400
9392	Jumper	-	-

USE HEATSINK-GROUND AS MEASUREGROUND

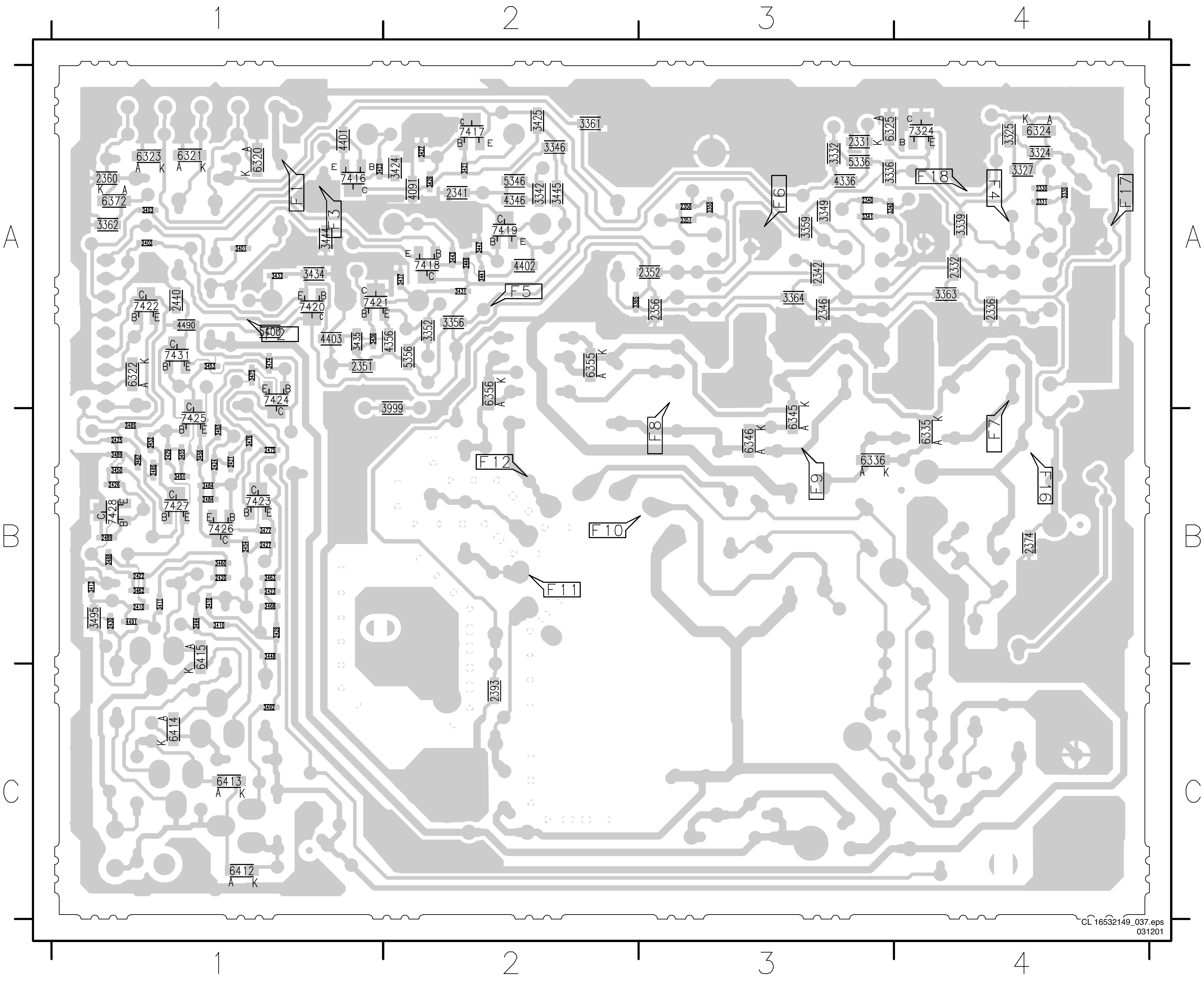


Layout CRT / Auto SCAVEM Panel (Top View)


1
2
3
4
A
B
C
0340
5401
5402
5403
1382
0031
0032
0033
7330
7340
7350
3333
3343
3353
2325
2337
2347
2357
3392
9384
3354
3345
3329
9409
9386
9410
3334
3344
0297
3372
3374
3373
2372
2373
2370
2383
3335
9383
2384
9388
2381
3355
3397
0334
3478
3493
7415
6374
2382
5373
5372
9392
3396
2397
2398
9387
7414
9381
3470
3473
7413
3414
0324
3385
9390
3404
9382
0235
6373
3383
9385
9403
3472
7412
2411
3422
0383
3360
6371
3386
3382
9398
9399
9401
9302
9301
9303
9304
PHILIPS
CL 16532149_036.eps
031201

0031	A1
0032	A2
0033	A3
0235	C2
0297	B3
0324	C1
0334	B4
0340	A4
0383	C4
1382	A4
2325	A1
2337	A1
2347	A2
2357	A3
2370	B1
2372	B1
2373	B1
2381	B2
2382	C1
2383	B2
2384	B2
2397	C3
2398	C3
2411	C4
3329	A3
3333	A1
3334	B2
3335	B2
3343	A1
3344	B2
3345	A3
3353	A2
3354	A3
3355	B3
3360	A4
3372	B1
3373	B1
3374	B1
3382	A4
3383	C3
3385	C2
3386	A4
3392	A3
3396	C3
3397	B3
3404	C1
3414	C1
3422	C4
3470	C4
3472	C4
3473	C4
3478	B4
3493	B4
5372	C1
5373	C1
5401	A3
5402	A3
5403	A4
6371	A4
6373	C2
6374	B1
7330	A1
7340	A2
7350	A2
7412	C4
7413	C4
7414	C4
7415	B4
9301	A4
9302	A4
9303	A4
9304	A4
9381	C4
9382	C2
9383	B2
9384	A3
9385	C3
9386	A4
9387	C4
9388	B2
9390	C2
9392	C1
9398	A3
9399	A3
9401	A4
9403	C4
9409	A4
9410	B4

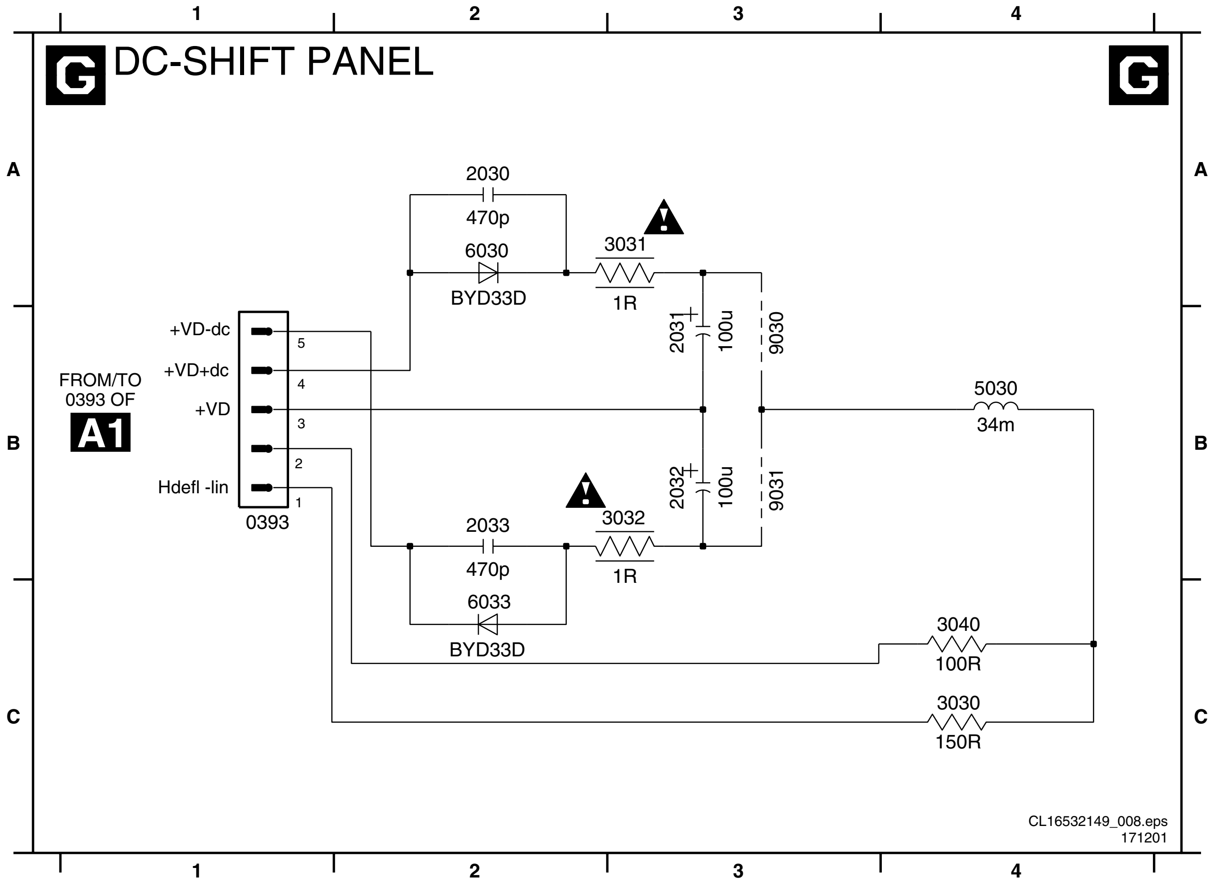
Layout CRT / Auto SCAVEM Panel (Bottom View)


1
2
3
4
A
B
C
F1
F2
F3
F4
F5
F6
F7
F8
F9
F10
F11
F12
F16
F17
F18
6323
6321
6320
2360
6372
3362
7416
3424
4091
4401
7417
3425
3361
3346
5346
4346
3342
3445
2341
7419
7418
4402
3444
3434
7420
7421
7422
2440
4490
5400
4403
3436
4356
3352
3356
5356
2351
7431
6322
7424
7425
7427
7428
7423
7426
3999
6356
6355
2352
2356
3364
2342
2346
3359
3349
4336
3332
2331
5336
6325
3336
7324
3325
6324
3324
3327
3339
2332
3363
2336
6345
6346
6336
6335
2374
2393
3495
6415
6414
6413
6412
CL 16532149_037.eps
031201

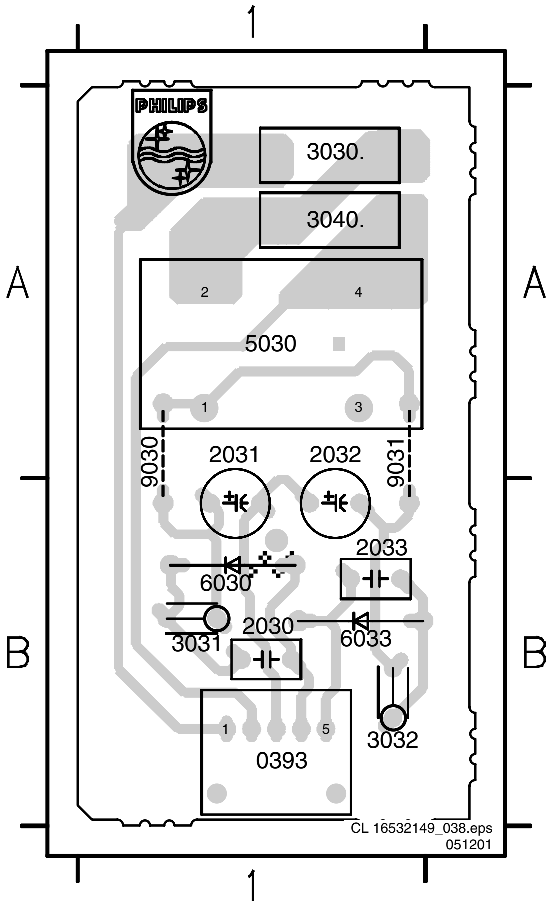
2330	A4
2331	A3
2332	A4
2336	A4
2340	A3
2341	A2
2342	A3
2346	A3
2350	A3
2351	A1
2352	A3
2356	A3
2360	A1
2374	B4
2393	C2
2410	B1
2420	B1
2421	B1
2422	B1
2423	B1
2424	B1
2425	B1
2426	B1
2427	B1
2428	B1
2429	B1
2430	B1
2440	A1
2475	B1
2484	B1
2485	B1
2489	B1
3324	A4
3325	A4
3327	A4
3330	A4
3331	A4
3332	A3
3336	A3
3339	A4
3340	A3
3341	A3
3342	A2
3346	A2
3349	A3
3350	A3
3351	A3
3352	A2
3356	A2
3359	A3
3361	A2
3362	A1
3363	A4
3364	A3
3365	A2
3401	A1
3402	A1
3403	A1
3410	B1
3411	B1
3413	B1
3416	B1
3421	A2
3423	A1
3424	A2
3425	A2
3426	A2
3427	A2
3431	A2
3433	A1
3434	A1
3435	A1
3436	A1
3437	A2
3441	A2
3443	A2
3444	A1
3445	A2
3446	A2
3447	A2
3448	B1
3450	B1
3451	B1
3452	B1
3453	A1
3454	B1
3455	B1
3456	B1
3460	B1
3462	B1
3463	B1
3468	B1
3474	A1
3475	A1
3476	B1
3477	B1
3483	B1
3484	B1
3485	B1
3487	B1
3488	B1
3489	B1
3492	C1
3494	B1
3495	B1
3999	A2
4091	A2
4336	A3
4346	A2
4356	A2
4401	A1
4402	A2
4403	A1
4490	A1
4491	B1
5336	A3
5346	A2
5356	A2
5400	A1
6320	A1
6321	A1
6322	A1
6323	A1
6324	A4
6325	A4
6335	B4
6336	B3
6345	B3
6346	B3
6355	A2
6356	A2
6372	A1
6412	C1
6413	C1
6414	C1
6415	B1
7324	A4
7416	A1
7417	A2
7418	A2
7419	A2
7420	A1
7421	A1
7422	A1
7423	B1
7424	B1
7425	B1
7426	B1
7427	B1
7428	B1
7431	A1

DC Shift Panel

Part	Position
0393	A1
2030	A2
2031	B3
2032	B3
2033	B2
3030	C4
3031	A3
3032	B3
3040	C4
5030	B4
6030	A2
6033	C2
9030	B3
9031	B3


G DC-SHIFT PANEL G
1
2
3
4
A
B
C
2030
470p
6030
BYD33D
3031
1R
2031
100u
9030
+VD-dc
+VD+dc
+VD
Hdefl -lin
5
4
3
2
1
0393
FROM/TO
0393 OF
A1
5030
34m
2032
100u
9031
2033
470p
3032
1R
6033
BYD33D
3040
100R
3030
150R
CL16532149_008.eps
171201

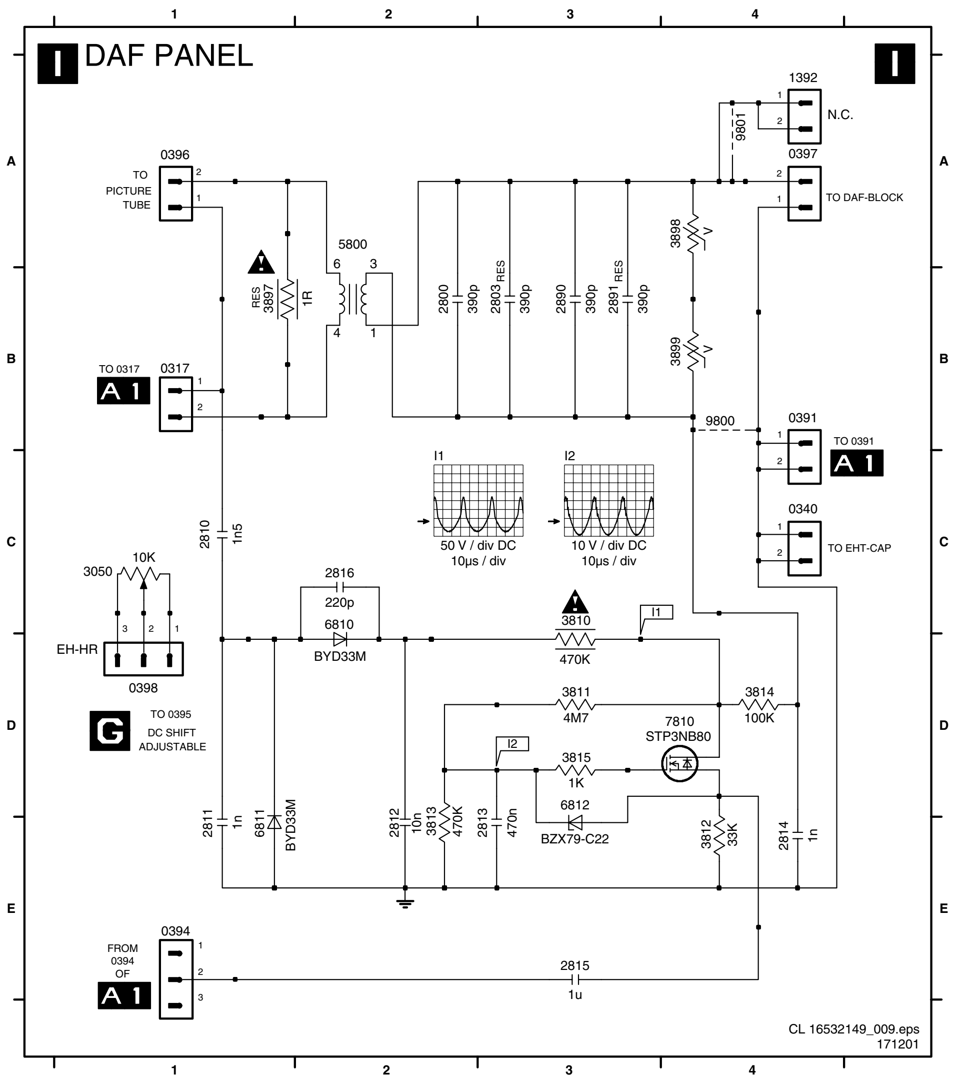
Layout DC Shift Panel


1
A
B
PHILIPS
3030.
3040.
5030
2
4
1
3
9030
9031
2031
2032
2033
6030
2030
3031
6033
0393
3032
CL 16532149_038.eps
051201

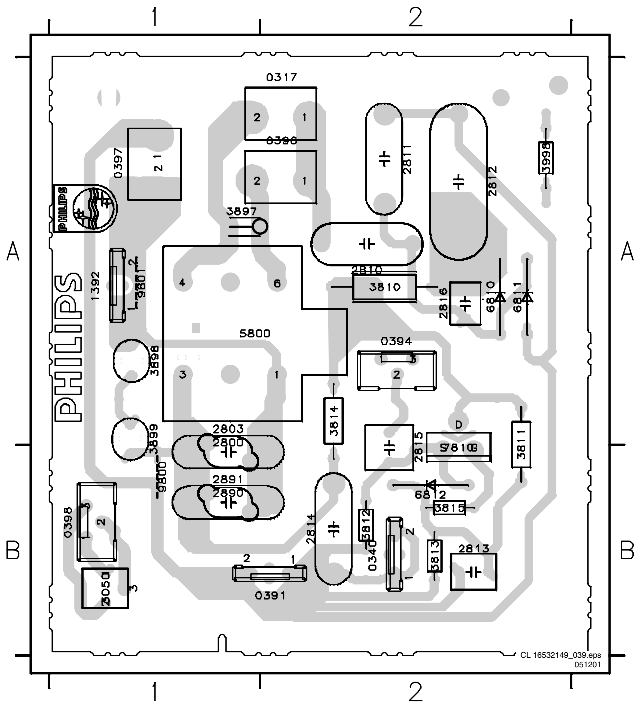
Part	Position
0393	B1
2030	B1
2031	B1
2032	B1
2033	B1
3030	A1
3031	B1
3032	B1
3040	A1
5030	A1
6030	B1
6033	B1
9030	B1
9031	B1

DAF Panel

Part	Position
0317	B1
0340	C4
0391	B4
0394	E1
0396	A1
0397	A4
0398	D1
1392	A4
2800	B2
2803	B3
2810	C1
2811	E1
2812	E2
2813	E3
2814	E4
2815	E3
2816	C2
2890	B3
2891	B3
3050	C1
3810	C3
3811	D3
3812	E4
3813	E2
3814	D4
3815	D3
3897	B1
3898	A4
3899	B4
3998	C3
5800	A2
6810	C2
6811	E1
6812	D3
7810	D4
9800	B4
9801	A4


I DAF PANEL I
1
2
3
4
A
B
C
D
E
1392
N.C.
9801
0397
TO DAF-BLOCK
0396
TO PICTURE TUBE
RES
3897
1R
5800
6
3
4
1
2800
390p
2803
RES
390p
2890
390p
2891
RES
390p
3898
3899
TO 0317
0317
A1
9800
0391
TO 0391
A1
0340
TO EHT-CAP
I1
I2
50 V / div DC
10µs / div
10 V / div DC
10µs / div
2810
1n5
3050
10K
EH-HR
0398
2816
220p
6810
BYD33M
3810
470K
I1
G
TO 0395
DC SHIFT
ADJUSTABLE
3811
4M7
3814
100K
7810
STP3NB80
I2
3815
1K
6812
BZX79-C22
2811
1n
6811
BYD33M
2812
10n
3813
470K
2813
470n
3812
33K
2814
1n
FROM
0394
OF
A1
0394
2815
1u
CL 16532149_009.eps
171201

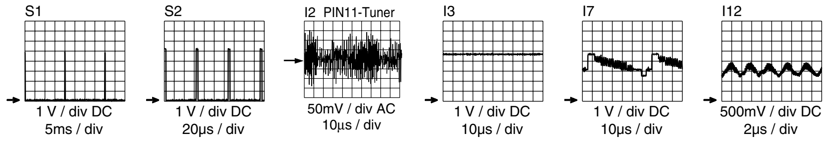
Layout DAF Panel

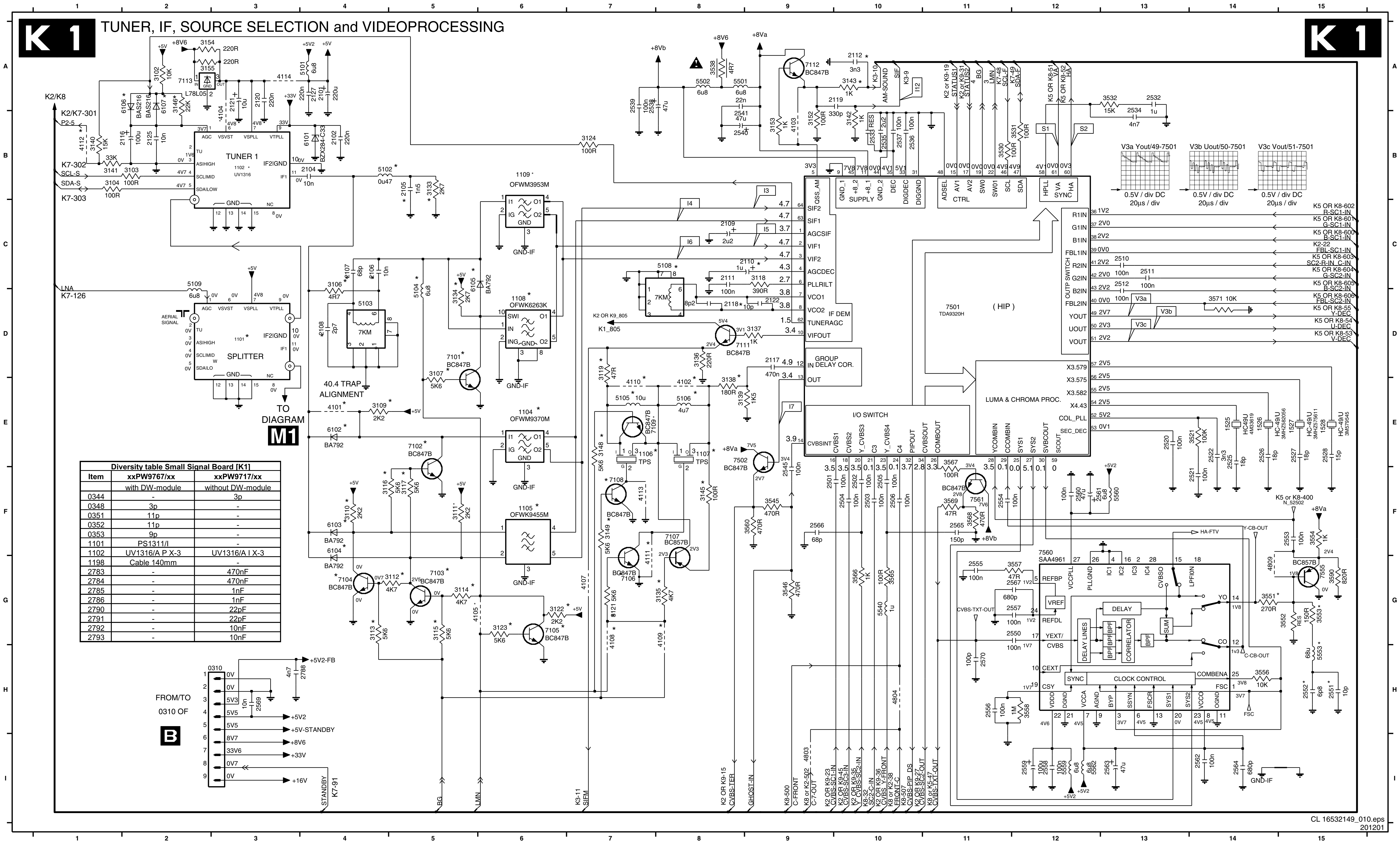

1
2
A
B
PHILIPS
0317
0396
0397
2811
2812
3998
3897
1392
9801
2810
3810
2816
6810
6811
5800
3898
0394
3814
3899
9800
2803
2800
2891
2890
2815
7810
6812
3815
3811
0398
3050
2814
6813
0340
3813
2813
0391
CL 16532149_009.eps
051201

Part	Position
0317	A2
0340	B2
0391	B2
0394	A2
0396	A2
0397	A1
0398	B1
1392	A1
2800	A2
2803	A1
2810	A2
2811	A2
2812	A2
2813	B2
2814	B2
2815	A2
2816	A2
2890	B2
2891	B1
3050	B1
3810	A2
3811	A2
3812	B2
3813	B2
3814	A2
3815	B2
3897	A1
3898	A1
3899	A1
3998	A1
5800	A2
6810	A2
6811	A2
6812	B2
7810	A2
9800	B1
9801	A1

Small Signal Board: Tuner, IF, Source Selection and Video Processing

0310 H2
1101 D3
1102 B3
1104 E6
1105 F6
1106 E7
1107 E8
1108 D6
1109 B6
1525 E14
1526 E14
1527 E15
1528 E15
2101 A4
2102 B4
2104 B4
2105 B5
2106 C4
2107 C4
2108 D4
2109 C8
2110 C9
2111 C8
2112 A10
2116 B2
2117 D9
2118 D8
2119 A10
2120 A3
2121 A3
2122 D9
2125 B2
2127 A4
2501 F9
2502 F10
2503 F10
2504 F10
2505 F10
2506 F10
2510 C13
2511 C13
2512 C13
2520 E13
2521 F14
2522 E14
2525 E14
2526 E14
2527 E15
2528 E15
2532 A13
2533 B10
2534 A13
2535 B10
2536 B10
2537 B10
2538 A7
2539 A7
2540 B8
2541 B8
2545 F9
2550 G12
2551 H15
2552 H15
2553 F15
2554 F11
2555 G11
2556 H11
2557 G12
2558 I12
2559 I12
2560 F12
2561 F12
2562 I14
2563 I13
2564 I14
2565 F11
2566 F9
2567 G12
2569 H3
2570 H11
2788 H4
3102 A2
3103 B2
3104 B1
3106 C4
3107 D5
3109 E4
3110 F4
3111 F5
3112 G5
3113 G4
3114 G5
3115 G5
3116 F4
3117 F5
3118 C9
3119 D7
3121 G7
3122 G6
3123 G6
3124 B7
3133 B5
3134 D5
3135 G8
3136 D8
3137 D9
3138 E8
3139 E8
3140 B1
3141 B1
3142 B10
3143 A10
3145 F8
3146 A2
3148 E7
3149 F7
3152 B9
3153 B9
3154 A2
3155 A2
3521 E14
3530 B11
3531 B12
3532 A13
3538 A8
3545 F9
3546 G9
3551 G14
3552 G15
3553 G15
3554 F15
3556 H14
3557 G12
3558 H12
3560 F9
3565 G10
3566 G10
3567 E11
3568 F11
3569 F11
3571 D14
3590 G15
3999 A6
4101 E4
4102 E8
4103 B9
4104 B3
4105 G6
4107 G7
4108 G7
4109 G8
4110 E7
4111 G7
4112 B1
4113 F7
4114 A3
4803 I9
4804 H10
4809 G14
5101 A4
5102 B4
5103 D4
5104 D5
5105 E7
5106 E8
5108 C8
5109 C2
5501 A8
5502 A8
5540 G10
5553 H15
5559 I12
5560 F13
5562 I12
6101 B4
6102 E4
6103 F4
6104 F4
6105 C5
6106 A2
6107 A2
7101 D5
7102 E5
7103 G5
7104 G4
7105 G6
7106 G7
7107 F8
7108 F7
7109 E7
7111 D9
7112 A9
7113 A2
7501 D11
7502 E9
7555 G15
7560 F12
7561 F11



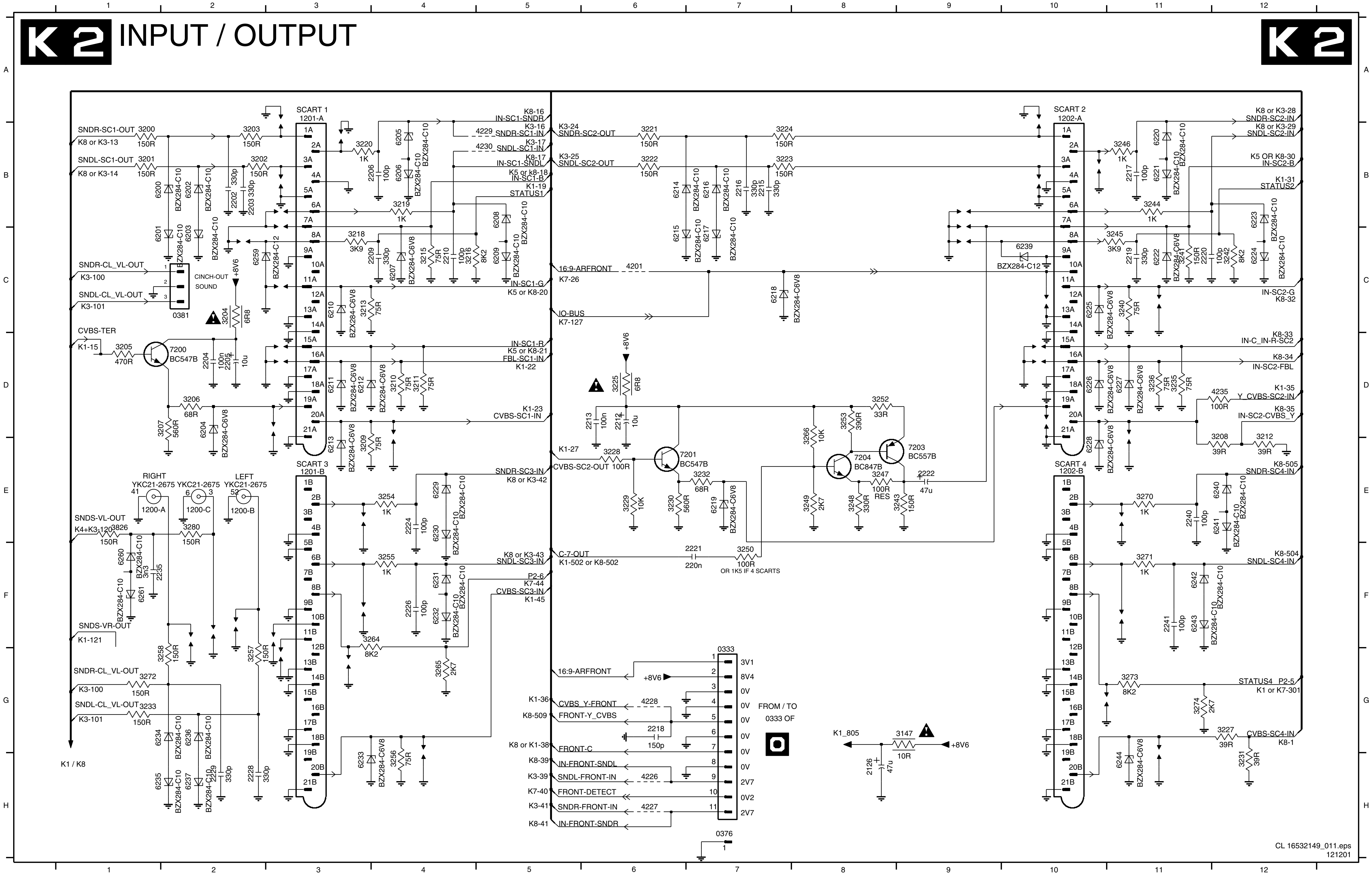

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
A
B
C
D
E
F
G
H
I
K 1
TUNER, IF, SOURCE SELECTION and VIDEOPROCESSING
K 1
K2/K8
K2/K7-301
P2-5
K7-302
SCL-S
SDA-S
K7-303
LNA
K7-126
AERIAL SIGNAL
TUNER 1
1102
UV1316
SPLITTER
1101
TO DIAGRAM
M1
40.4 TRAP ALIGNMENT
7KM
5103
1109
OFWM3953M
1108
OFWK6263K
1104
OFWM9370M
1105
OFWK9455M
GND-IF
7113
L78L05
7101 BC847B
7102 BC847B
7103 BC847B
7104 BC847B
7105 BC847B
7106 BC847B
7107 BC857B
7108
7109 BC847B
7111 BC847B
7112 BC847B
7502 BC847B
7555 BC857B
7561
7501
TDA9320H
(HIP)
IF DEM
GROUP DELAY COR.
I/O SWITCH
LUMA & CHROMA PROC.
OUTP SWITCH
SUPPLY
CTRL
SYNC
7560
SAA4961
VREF
DELAY
DELAY LINES
CORRELATOR
SUM
BPF
CLOCK CONTROL
FROM/TO
0310 OF
B
+5V2-FB
+5V2
+5V-STANDBY
+8V6
+33V
+16V
STANDBY
K7-91
RG
LMN
K3-11
SIFM
K2 OR K9-15
CVBS-TER
GHOST-IN
K8-500
C-FRONT
K2 or K2-502
C-7-OUT
K5 OR K8-602 R-SC1-IN
K5 OR K8-601 G-SC1-IN
K5 OR K8-600 B-SC1-IN
K2-22 FBL-SC1-IN
K5 OR K8-603 SC2-R-IN_C-IN
K5 OR K8-604 G-SC2-IN
K5 OR K8-605 B-SC2-IN
K5 OR K8-606 FBL-SC2-IN
K5 OR K8-55 Y-DEC
K5 OR K8-54 U-DEC
K5 OR K8-53 V-DEC
V3a Yout/49-7501
V3b Uout/50-7501
V3c Vout/51-7501
0.5V / div DC
20µs / div
K5 or K8-400
HA-FTV
Y-CB-OUT
C-CB-OUT
CVBS-TXT-OUT
FSC

Diversity table Small Signal Board [K1]		
Item	xxPW9767/xx	xxPW9717/xx
	with DW-module	without DW-module
0344	-	3p
0348	3p	-
0351	11p	-
0352	11p	-
0353	9p	-
1101	PS1311/I	-
1102	UV1316/A P X-3	UV1316/A I X-3
1198	Cable 140mm	-
2783	-	470nF
2784	-	470nF
2785	-	1nF
2786	-	1nF
2790	-	22pF
2791	-	22pF
2792	-	10nF
2793	-	10nF

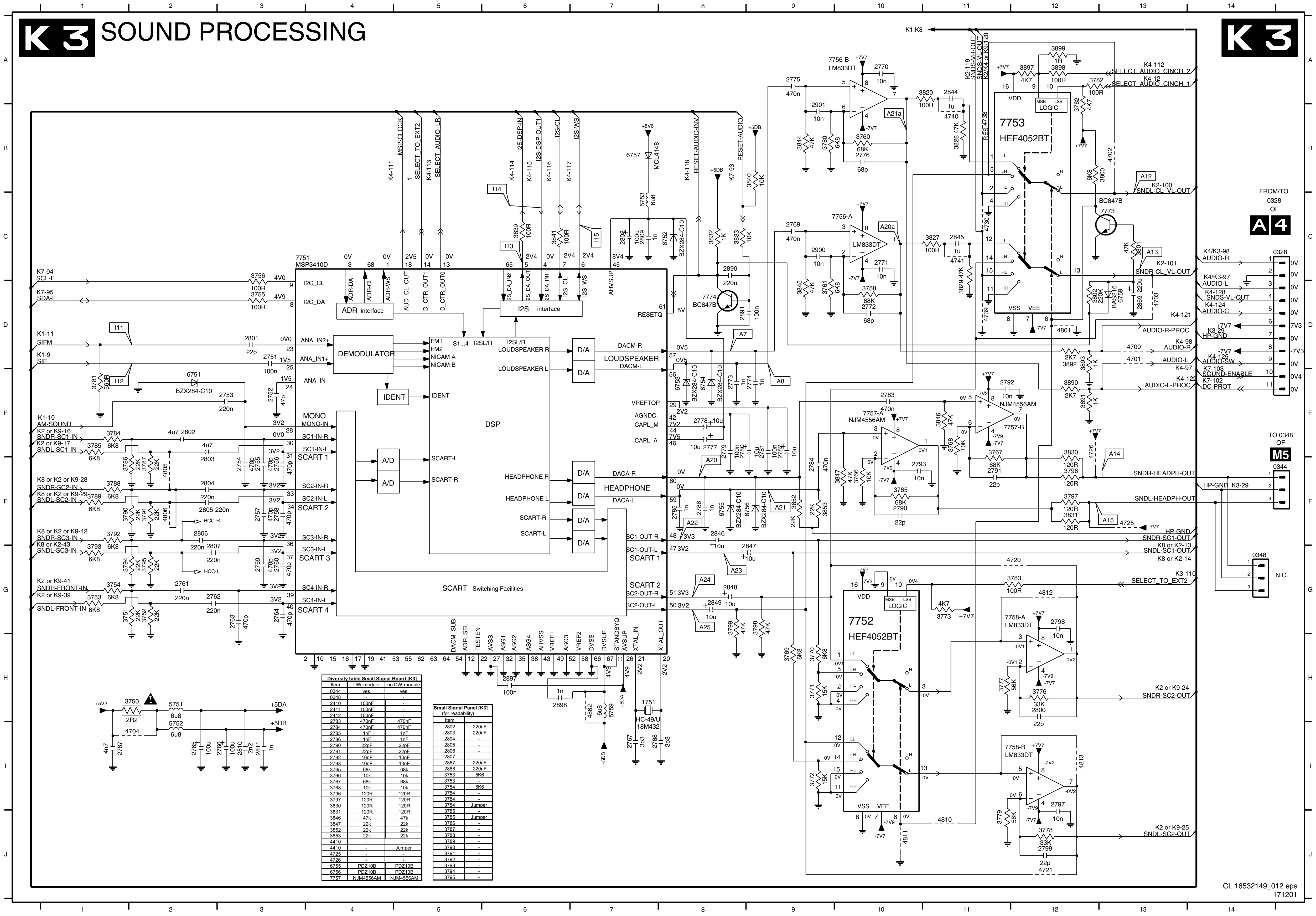
CL 16532149_010.eps
201201

Small Signal Board: Input / Output

0333 F7
0376 H8
0381 C2
1200-A E1
1200-B E2
1200-C E2
1201-A A3
1201-B E3
1202-A A10
1202-B E10
2126 H8
2202 B2
2203 B2
2204 D2
2205 D2
2206 B4
2209 C4
2210 C4
2212 E6
2213 E6
2215 B7
2216 B7
2217 B11
2218 G6
2219 C11
2220 C11
2221 F7
2222 F9
2224 E4
2226 F4
2228 H2
2229 H2
2235 F1
2240 E11
2241 F11
3147 G9
3200 B1
3201 B1
3202 B2
3203 B2
3204 C2
3205 D1
3206 D2
3207 D2
3208 E12
3209 E3
3210 D4
3211 D4
3212 E12
3213 C3
3215 C4
3216 C4
3218 C3
3219 B4
3220 B3
3221 B6
3222 B6
3223 B7
3224 B7
3225 D6
3227 G12
3228 E6
3229 F6
3230 F6
3231 H12
3232 E7
3233 G1
3235 D11
3236 D11
3240 C11
3241 C11
3242 C12
3243 F9
3244 B11
3245 C11
3246 B11
3247 F8
3248 F8
3249 F8
3250 F7
3252 F8
3253 F8
3254 E4
3255 F4
3256 H4
3257 G2
3258 G2
3264 F4
3265 G4
3266 F8
3270 E11
3271 F11
3272 G1
3273 G11
3274 G11
3280 E2
3826 E1
4201 C6
4226 H6
4227 H6
4228 G6
4229 B5
4230 B5
4235 D12
6200 B1
6201 C1
6202 B2
6203 C2
6204 D2
6205 B4
6206 B4
6207 C4
6208 B5
6209 C5
6210 C3
6211 D3
6212 D3
6213 E3
6214 B6
6215 C6
6216 B7
6217 C7
6218 C7
6219 D7
6220 B11
6221 B11
6222 C11
6223 B12
6224 C12
6225 C10
6226 D10
6227 D11
6228 E10
6229 E4
6230 E4
6231 F4
6232 F4
6233 H3
6234 G1
6235 H1
6236 G2
6237 H2
6239 C10
6240 E12
6241 E12
6242 F11
6243 F11
6244 H11
6259 C2
6260 F1
6261 F1
7200 D2
7201 E6
7203 F9
7204 F8


K2 INPUT / OUTPUT
K2
SCART 1
1201-A
SCART 2
1202-A
SCART 3
1201-B
SCART 4
1202-B
SNDR-SC1-OUT
K8 or K3-13
SNDL-SC1-OUT
K8 or K3-14
SNDR-CL_VL-OUT
K3-100
SNDL-CL_VL-OUT
K3-101
CINCH-OUT
SOUND
0381
CVBS-TER
K1-15
7200
BC547B
K8-16
IN-SC1-SNDR
K3-16
SNDR-SC1-IN
K3-17
SNDL-SC1-IN
K8-17
IN-SC1-SNDL
K5 or K8-18
IN-SC1-B
K1-19
STATUS1
IN-SC1-G
K5 or K8-20
IN-SC1-R
K5 or K8-21
FBL-SC1-IN
K1-22
K1-23
CVBS-SC1-IN
SNDR-SC3-IN
K8 or K3-42
K8 or K3-43
SNDL-SC3-IN
P2-6
K7-44
CVBS-SC3-IN
K1-45
RIGHT
YKC21-2675
LEFT
1200-A
1200-B
1200-C
SNDS-VL-OUT
K4+K3-120
SNDS-VR-OUT
K1-121
K1 / K8
K3-24
SNDR-SC2-OUT
K3-25
SNDL-SC2-OUT
16:9-ARFRONT
K7-26
IO-BUS
K7-127
K1-27
CVBS-SC2-OUT
7201
BC547B
7203
BC557B
7204
BC847B
C-7-OUT
K1-502 or K8-502
OR 1K5 IF 4 SCARTS
0333
3V1
8V4
0V
2V7
0V2
FROM / TO
0333 OF
K1_805
+8V6
16:9-ARFRONT
K1-36
CVBS_Y-FRONT
K8-509
FRONT-Y_CVBS
K8 or K1-38
FRONT-C
K8-39
IN-FRONT-SNDL
K3-39
SNDL-FRONT-IN
K7-40
FRONT-DETECT
K3-41
SNDR-FRONT-IN
K8-41
IN-FRONT-SNDR
0376
K8 or K3-28
SNDR-SC2-IN
K8 or K3-29
SNDL-SC2-IN
K5 OR K8-30
IN-SC2-B
K1-31
STATUS2
IN-SC2-G
K8-32
K8-33
IN-C_IN-R-SC2
K8-34
IN-SC2-FBL
K1-35
Y_CVBS-SC2-IN
K8-35
IN-SC2-CVBS_Y
K8-505
SNDR-SC4-IN
K8-504
SNDL-SC4-IN
STATUS4
P2-5
K1 or K7-301
CVBS-SC4-IN
K8-1
BZX284-C10
BZX284-C6V8
BZX284-C12
CL 16532149_011.eps
121201

Small Signal Board: Sound Processing


K 3
SOUND PROCESSING
K 3
7751
MSP3410D
ADR interface
I2S interface
DEMODULATOR
IDENT
DSP
A/D
D/A
LOUDSPEAKER
HEADPHONE
SCART 1
SCART 2
SCART 3
SCART 4
SCART Switching Facilities
7752
HEF4052BT
7753
HEF4052BT
7756-A
7756-B
LM833DT
7757-A
7757-B
NJM4556AM
7758-A
7758-B
LM833DT
7773
BC847B
7774
BC847B
1751
HC-49/U
18M432
K7-94 SCL-F
K7-95 SDA-F
K1-11 SIFM
K1-9 SIF
K1-10 AM-SOUND
K2 or K9-16 SNDR-SC1-IN
K2 or K9-17 SNDL-SC1-IN
K8 or K2 or K9-28 SNDR-SC2-IN
K8 or K2 or K9-29 SNDL-SC2-IN
K8 or K2 or K9-42 SNDR-SC3-IN
K8 or K2-43 SNDL-SC3-IN
K2 or K9-41 SNDR-FRONT-IN
K2 or K9-39 SNDL-FRONT-IN
K4-111 MSP-CLOCK
K4-113 SELECT_TO_EXT2
SELECT_AUDIO_LR
K4-114 I2S-DSP-IN
K4-115 I2S-DSP-OUT1
K4-116 I2S-CL
K4-117 I2S-WS
K4-118 RESET-AUDIO-INV
K7-93 RESET-AUDIO
K1:K8
K4-112 SELECT_AUDIO_CINCH_2
K4-12 SELECT_AUDIO_CINCH_1
K2-100 SNDL-CL_VL-OUT
K2-101 SNDR-CL_VL-OUT
K4/K3-98 AUDIO-R
K4/K3-97 AUDIO-L
K4-128 SNDS-VL-OUT
K4-124 AUDIO-C
K4-121 AUDIO-R-PROC
K3-29 HP-GND
K4-98 AUDIO-R
K4-126 AUDIO-SW
K4-97 AUDIO-L
K7-103 SOUND-ENABLE
K4-122 AUDIO-L-PROC
K7-102 DC-PROT
FROM/TO 0328 OF
A4
0328
TO 0348 OF
M5
0344
0348
N.C.
SNDR-HEADPH-OUT
SNDL-HEADPH-OUT
HP-GND
SNDR-SC1-OUT
K8 or K2-13 SNDL-SC1-OUT
K8 or K2-14
K3-110 SELECT_TO_EXT2
K2 or K9-24 SNDR-SC2-OUT
K2 or K9-25 SNDL-SC2-OUT
+5V2
+5DA
+5DB
+7V7
-7V7
+8V6
CL 16532149_012.eps
171201

Diversity table Small Signal Board [K3]

Item	DW-module	no DW-module
0344	yes	yes
0348	-	-
2410	100nF	-
2411	100nF	-
2412	100nF	-
2783	470nF	470nF
2784	470nF	470nF
2785	1nF	1nF
2786	1nF	1nF
2790	22pF	22pF
2791	22pF	22pF
2792	10nF	10nF
2793	10nF	10nF
3765	68k	68k
3766	10k	10k
3767	68k	68k
3768	10k	10k
3796	120R	120R
3797	120R	120R
3830	120R	120R
3831	120R	120R
3846	47k	47k
3847	22k	22k
3852	22k	22k
3853	22k	22k
4410	-	-
4410	-	Jumper
4725	-	-
4726	-	-
6755	PDZ10B	PDZ10B
6756	PDZ10B	PDZ10B
7757	NJM4556AM	NJM4556AM

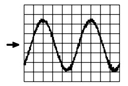
Small Signal Panel [K3]
(for readability)

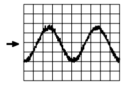
Item	
2802	220nF
2803	220nF
2804	-
2805	-
2806	-
2807	-
2887	220nF
2888	220nF
3753	5K6
3753	-
3754	5K6
3754	-
3784	-
3784	Jumper
3785	-
3785	Jumper
3786	-
3787	-
3788	-
3789	-
3790	-
3791	-
3792	-
3793	-
3794	-
3795	-

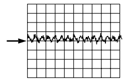
0328	C14
0344	F14
0348	G14
1751	H7
2751	D3
2752	E3
2753	E3
2754	F3
2755	F3
2756	F3
2757	F3
2758	F3
2759	G3
2760	G3
2761	G2
2762	G2
2763	G3
2764	G3
2765	I2
2766	I3
2767	I7
2768	I7
2769	C9
2770	A10
2771	C10
2772	D10
2773	E8
2774	E9
2775	A9
2776	B10
2777	E8
2778	E8
2779	E8
2780	E8
2781	E9
2782	E9
2783	E10
2784	F9
2785	F8
2786	F8
2787	I1
2790	F10
2791	F11
2792	E11
2793	F10
2797	I12
2798	G12
2799	J12
2800	H12
2801	D3
2802	E2
2803	E2
2804	F2
2805	F2
2806	F2
2807	G2
2808	C7
2809	C7
2810	I3
2811	I3
2844	A11
2845	C11
2846	F8
2847	F9
2848	G8
2849	G8
2869	D13
2890	C8
2891	D8
2897	H6
2898	H6
2900	C9
2901	B9
3750	H2
3751	G1
3752	G2
3753	G1
3754	G1
3755	D3
3756	C3
3758	D10
3760	B10
3761	D9
3762	B12
3765	F10
3766	F10
3767	E11
3768	E11
3769	H9
3770	H9
3771	H9
3772	I9
3773	G11
3776	H12
3777	H11
3778	J12
3779	J11
3780	B9
3781	E1
3782	A12
3783	G11
3784	E1
3785	E1
3786	F1
3787	F2
3788	F1
3789	F1
3790	F1
3791	F2
3792	F1
3793	G1
3794	G1
3795	G2
3796	F12
3797	F12
3798	G9
3799	G8
3800	B13
3801	C13
3802	D12
3820	A11
3827	C11
3828	B11
3829	D11
3830	E12
3831	F12
3832	C8
3833	C8
3839	C6
3840	B9
3841	C6
3844	B9
3845	D9
3846	E11
3847	F10
3852	F9
3853	F9
3890	E12
3891	E12
3892	D12
3893	D12
3897	A12
3898	A12
3899	A12
4700	D13
4701	D13
4702	B13
4703	D13
4704	I2
4720	G11
4721	J12
4725	F13
4726	E12
4730	C11
4738	B11
4739	D11
4740	B11
4741	C11
4801	D12
4805	F2
4806	F2
4810	J11
4811	J10
4812	G12
4813	I12
4862	H7
5751	H2
5752	I2
5753	C7
5759	H7
6751	E2
6752	C8
6753	E8
6754	E8
6755	F8
6756	F9
6757	B7
6759	D13
7751	C3
7752	G10
7753	B11
7756-A	C9
7756-B	A9
7757-A	E10
7757-B	E12
7758-A	G11
7758-B	I11
7773	C13
7774	D8

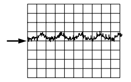
Small Signal Panel [K3+K4]

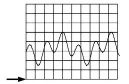
Item	wired dolby	wireless dolby
2769	470nF	470nF
2770	10nF	-
2771	10nF	-
2772	22pF	-
2773	1nF	-
2774	1nF	-
2775	470nF	470nF
2776	22pF	-
2813	10nF	-
2814	10nF	-
2815	10nF	-
2816	100 F	-
2817	10nF	-
2818	100 F	-
2819	100 F	-
2820	1nF	-
2821	10nF	-
2822	1nF	-
2824	100 F	-
2825	10nF	-
2826	22pF	-
2827	1nF	-
2828	10nF	-
2829	1nF	-
2830	10nF	-
2831	100 F	-
2832	22nF	-
2833	22nF	-
2836	47pF	-
2837	10nF	-
2838	22pF	-
2839	10nF	-
2840	10nF	-
2841	470nF	-
2844	1 F	-
2845	1 F	-
2892	470nF	-
2895	10nF	-
3758	47k	-
3760	47k	-
3761	6k8	-
3762	4k7	-
3780	6k8	-
3782	100R	-
3811	100R	-
3812	100R	-
3813	100R	-
3814	100R	-
3817	100k	-
3818	100R	-
3819	100R	-
3820	100R	-
3821	3k3	-
3822	33k	-
3823	4k7	-
3824	100R	-
3825	56k	-
3827	100R	-
3828	47k	-
3829	47k	-
3837	56k	-
3838	100R	-
3839	100R	-
3841	100R	-
3842	47k	-
3844	47k	-
3845	47k	-
3848	100R	-
3849	100R	-
3890	2k7	-
3891	1k	-
3892	2k7	-
3892	Jumper	-
3893	1k	-
3894	47k	-
3897	4k7	-
3898	100R	-
4700	Jumper	-
4701	Jumper	-
4702	Jumper	Jumper
4703	Jumper	Jumper
4730	Jumper	-
4739	Jumper	-
5754	6,8 H	-
5755	6,8 H	-
5756	6,8 H	-
6753	PDZ10B	-
6754	PDZ10B	PDZ10B
7750	LF33CV	-
7753	HEF4052BT	-
7756	LM833DR2	-
7770	SAA7712H/N203	-
7772	LM833DR2	-
7775	HEF4052BT	-

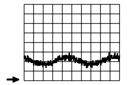
A7

200mV / div DC
200µs / div

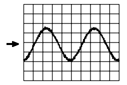
A8

200mV / div DC
200µs / div

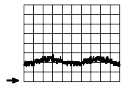
A14 HP-R/1-0344

50mV / div DC
0.5ms / div

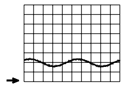
A15 HP-R/3-0344

50mV / div DC
0.5ms / div

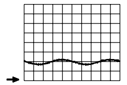
A15a

0.5V / div
0.2ms / div

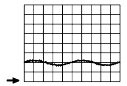
A20

1 V / div DC
200µs / div

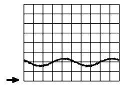
A20a

500mV / div DC
200µs / div

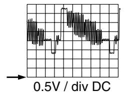
A21

1 V / div DC
200µs / div

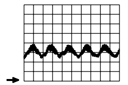
A22

2 V / div DC
200µs / div

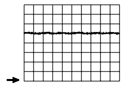
A23

2 V / div DC
200µs / div

A24

2 V / div DC
200µs / div

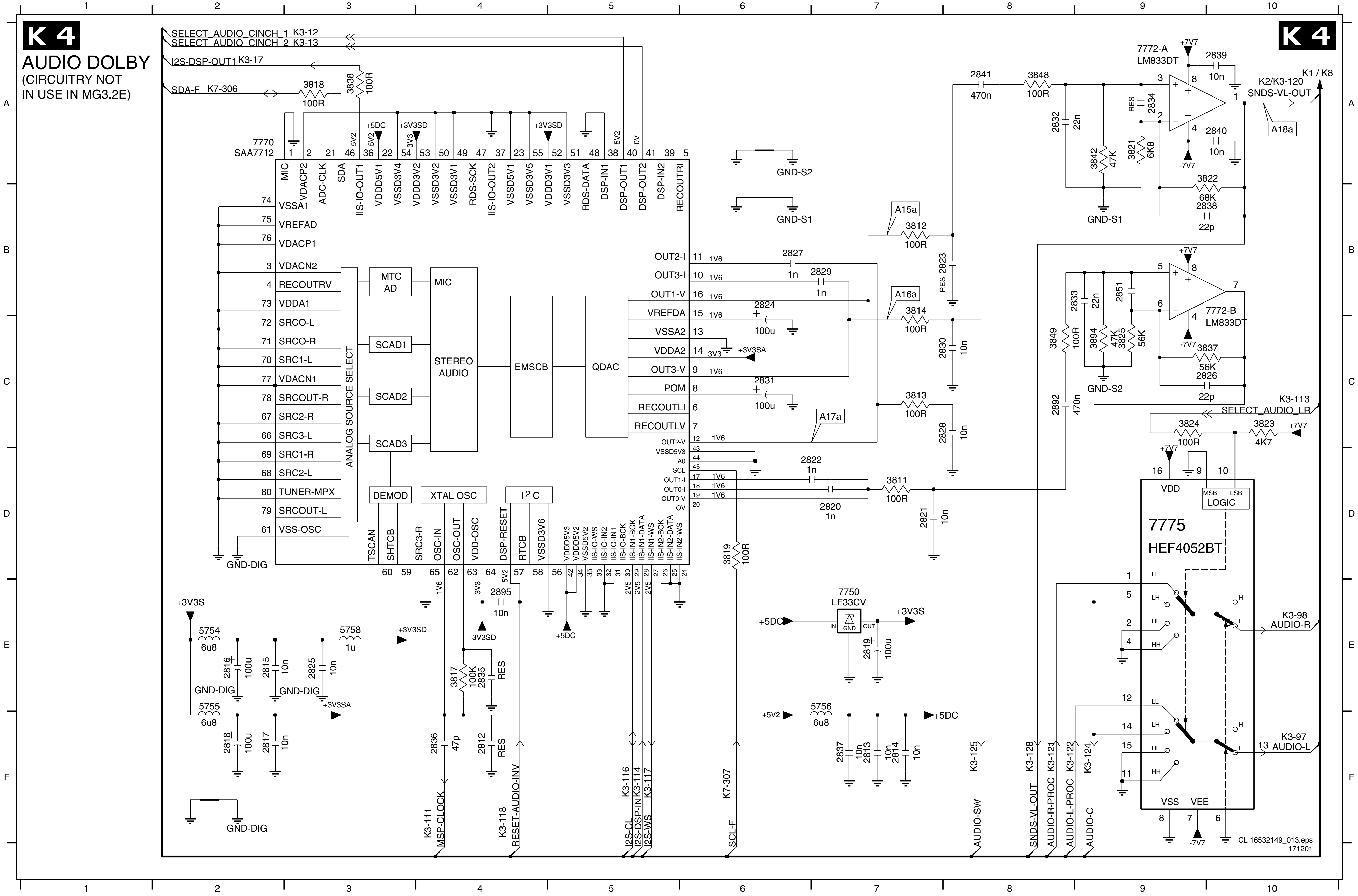
A25

2 V / div DC
200µs / div

I11 SIFM-E7111

0.5V / div DC
10µs / div

I12

500mV / div DC
2µs / div

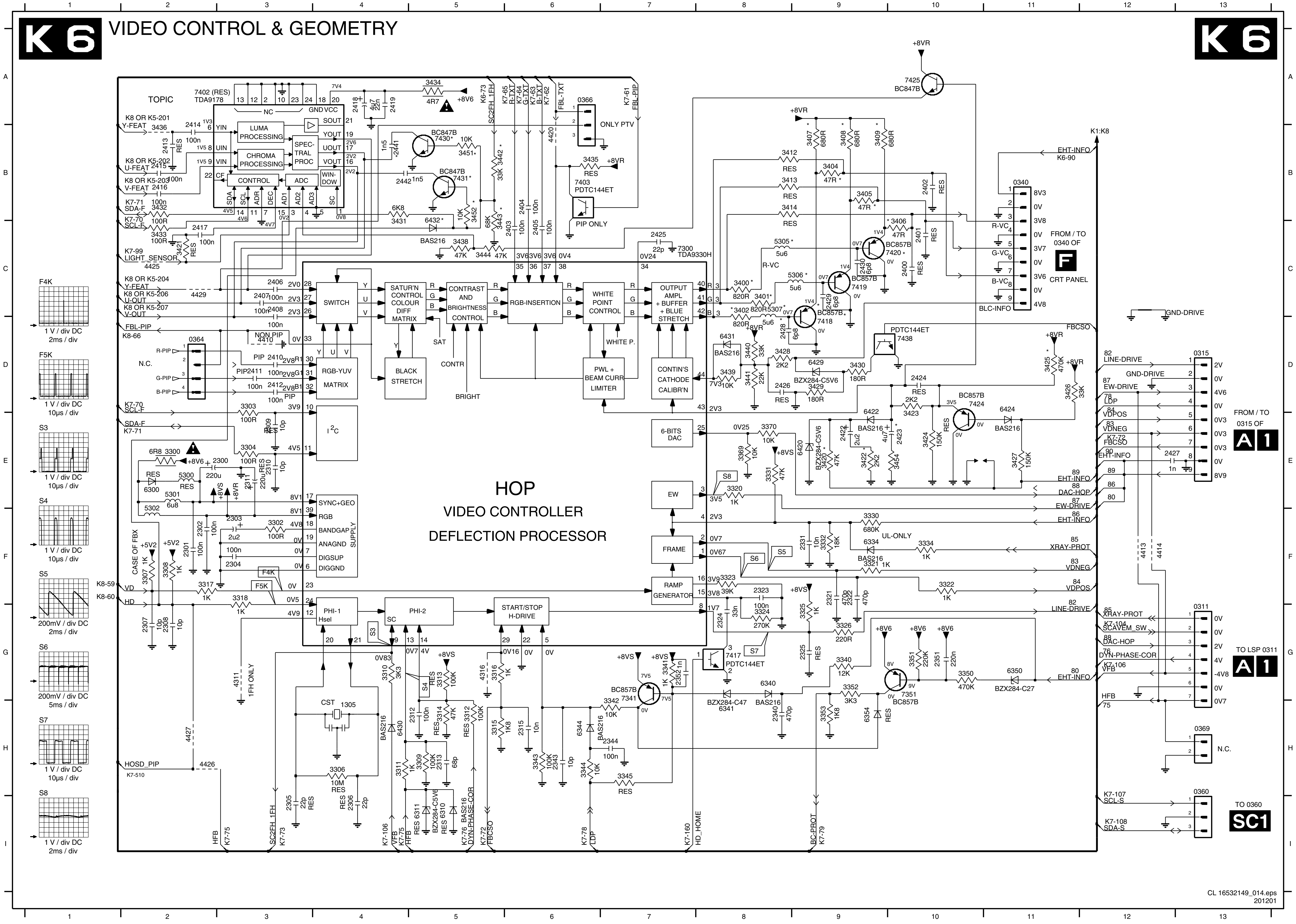
I14

1 V / div DC
500ns / div

Small Signal Board: Sound Processing


K 4
AUDIO DOLBY
(CIRCUITRY NOT
IN USE IN MG3.2E)
SELECT_AUDIO_CINCH_1 K3-12
SELECT_AUDIO_CINCH_2 K3-13
I2S-DSP-OUT1 K3-17
SDA-F K7-306
3818 100R
3838 100R
7770
SAA7712
MIC
VDACP2
ADC-CLK
SDA
IIS-IO-OUT1
VDDD5V1
VSSD3V4
VDDD3V2
VSSD3V2
VSSD3V1
RDS-SCK
IIS-IO-OUT2
VSSD5V1
VSSD3V5
VDDD3V1
VSSD3V3
RDS-DATA
DSP-IN1
DSP-OUT1
DSP-OUT2
DSP-IN2
RECOUTRI
VSSA1
VREFAD
VDACP1
VDACN2
RECOUTRV
VDDA1
SRCO-L
SRCO-R
SRC1-L
VDACN1
SRCOUT-R
SRC2-R
SRC3-L
SRC1-R
SRC2-L
TUNER-MPX
SRCOUT-L
VSS-OSC
ANALOG SOURCE SELECT
MTC AD
MIC
SCAD1
SCAD2
SCAD3
STEREO AUDIO
EMSCB
QDAC
DEMOD
XTAL OSC
I2C
OUT2-I
OUT3-I
OUT1-V
VREFDA
VSSA2
VDDA2
OUT3-V
POM
RECOUTLI
RECOUTLV
TSCAN
SHTCB
SRC3-R
OSC-IN
OSC-OUT
VDD-OSC
DSP-RESET
RTCB
VSSD3V6
GND-DIG
GND-S2
GND-S1
A15a
A16a
A17a
A18a
2827 1n
2829 1n
2824 100u
2831 100u
2822 1n
2820 1n
3811 100R
3812 100R
3813 100R
3814 100R
2823 RES
2830 10n
2828 10n
2821 10n
3819 100R
2841 470n
3848 100R
2832 22n
3842 47K
3821 6K8
2834 RES
7772-A
LM833DT
+7V7
-7V7
2839 10n
2840 10n
3822 68K
2838 22p
K2/K3-120
SNDS-VL-OUT
K1 / K8
7772-B
LM833DT
2833 22n
2851
3894 47K
3825 56K
3849 100R
3837 56K
2826 22p
GND-S2
2892 470n
K3-113
SELECT_AUDIO_LR
3824 100R
3823 4K7
7775
HEF4052BT
VDD
MSB LSB
LOGIC
VSS VEE
K3-98
AUDIO-R
K3-97
AUDIO-L
7750
LF33CV
+5DC
+3V3S
2819 100u
+5V2
5756 6u8
2837 10n
2813 10n
2814 10n
+3V3S
5754 6u8
5758 1u
+3V3SD
2816 100u
2815 10n
2825 10n
5755 6u8
+3V3SA
2818 100u
2817 10n
2895 10n
3817 100K
2835 RES
2836 47p
2812 RES
K3-111 MSP-CLOCK
K3-118 RESET-AUDIO-INV
K3-116 I2S-CL
K3-114 I2S-DSP-IN
K3-117 I2S-WS
K7-307 SCL-F
K3-125 AUDIO-SW
K3-128 SNDS-VL-OUT
K3-121 AUDIO-R-PROC
K3-122 AUDIO-L-PROC
K3-124 AUDIO-C
CL 16532149_013.eps
171201

2812	F4
2813	F7
2814	F7
2815	E2
2816	E2
2817	F2
2818	F2
2819	E7
2820	D7
2821	D7
2822	D7
2823	B8
2824	B6
2825	E3
2826	C10
2827	B6
2828	C8
2829	B7
2830	C8
2831	C6
2832	A8
2833	B9
2834	A9
2835	E4
2836	F4
2837	F7
2838	B10
2839	A10
2840	A10
2841	A8
2851	B9
2892	C8
2895	E4
3811	D7
3812	B7
3813	C7
3814	B7
3817	E4
3818	A3
3819	D6
3821	A9
3822	A10
3823	C10
3824	C9
3825	C9
3837	C10
3838	A3
3842	A9
3848	A8
3849	C8
3894	C9
5754	E2
5755	E2
5756	E7
5758	E3
7750	E7
7770	A2
7772-A	A9
7772-B	B9
7775	D9

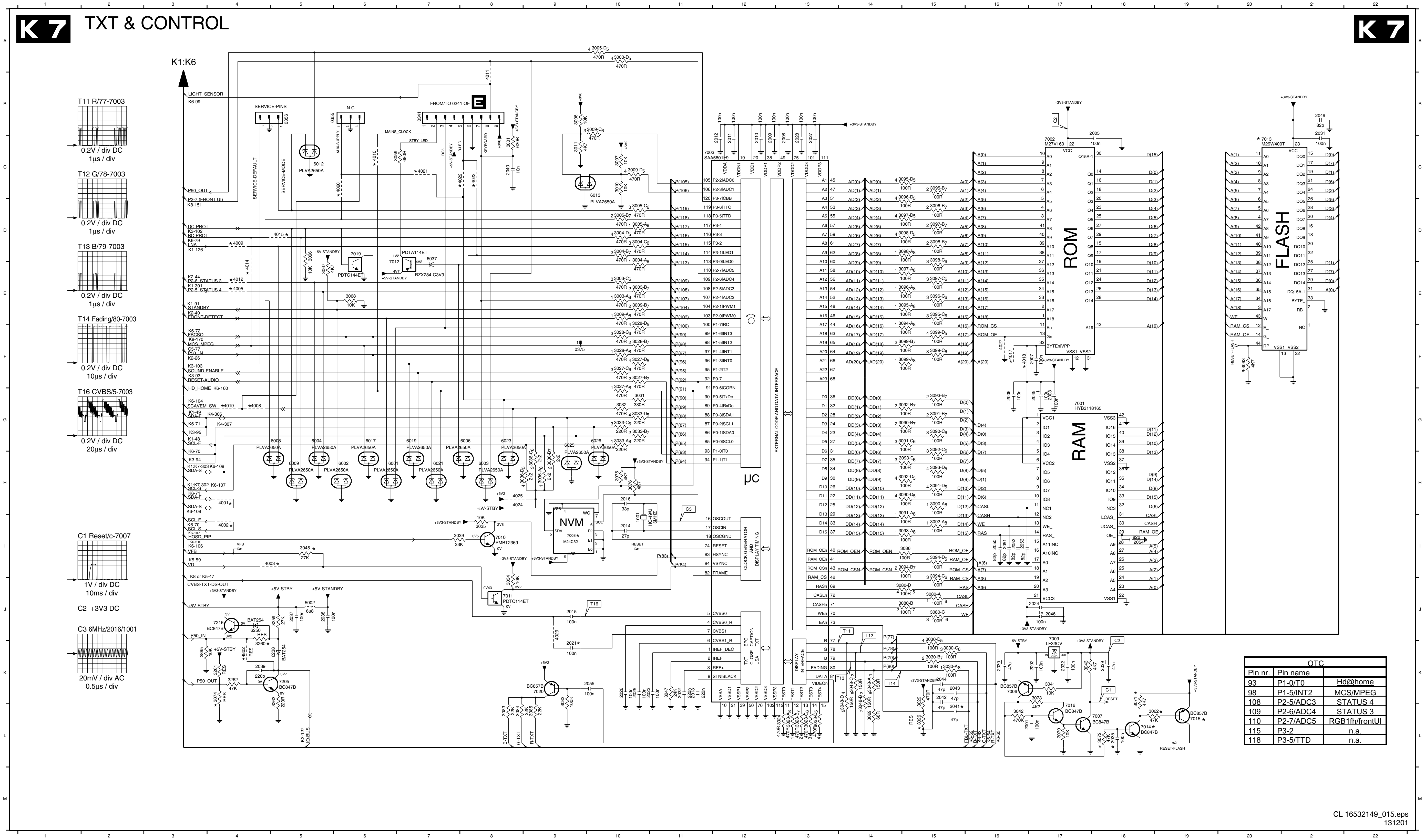
Small Signal Board: Video Control and Geometry


K 6
VIDEO CONTROL & GEOMETRY
TOPIC
7402 (RES) TDA9178
LUMA PROCESSING
CHROMA PROCESSING
SPECTRAL PROC
CONTROL
ADC
WIN-DOW
HOP
VIDEO CONTROLLER
DEFLECTION PROCESSOR
SWITCH
SATUR'N CONTROL COLOUR DIFF MATRIX
CONTRAST AND BRIGHTNESS CONTROL
RGB-INSERTION
WHITE POINT CONTROL
OUTPUT AMPL + BUFFER + BLUE STRETCH
RGB-YUV MATRIX
BLACK STRETCH
PWL + BEAM CURR LIMITER
CONTIN'S CATHODE CALIBR'N
6-BITS DAC
EW
FRAME
RAMP GENERATOR
PHI-1 Hsel
PHI-2 SC
START/STOP H-DRIVE
SYNC+GEO RGB BANDGAP ANAGND DIGSUP DIGGND SUPPLY
I²C
F4K
1 V / div DC 2ms / div
F5K
1 V / div DC 10µs / div
S3
1 V / div DC 10µs / div
S4
1 V / div DC 10µs / div
S5
200mV / div DC 2ms / div
S6
200mV / div DC 5ms / div
S7
1 V / div DC 10µs / div
S8
1 V / div DC 2ms / div
FROM / TO 0340 OF
F
CRT PANEL
FROM / TO 0315 OF
A1
TO LSP 0311
A1
TO 0360
SC1
ONLY PTV
PIP ONLY
N.C.
GND-DRIVE
K1:K8
CL 16532149_014.eps
201201

Part	Location
0311	G13
0315	D13
0340	B11
0360	H13
0364	D2
0366	A6
0369	H13
1305	H4
2300	E3
2301	F2
2302	F2
2303	F3
2304	F3
2305	I3
2306	I4
2307	G2
2308	G2
2309	E3
2310	E3
2311	E3
2312	H5
2313	H5
2315	H6
2321	F9
2322	F9
2323	F8
2324	G8
2325	G9
2331	F9
2340	H8
2343	H6
2344	H7
2351	G10
2352	G7
2400	C10
2401	C10
2402	B10
2403	C6
2404	B6
2405	C6
2406	C3
2407	C3
2408	C3
2410	D3
2411	D3
2412	D3
2413	B2
2414	B2
2415	B2
2416	B2
2417	C2
2418	A4
2419	A4
2422	E9
2423	E10
2424	D10
2425	C7
2426	D8
2427	E12
2428	D8
2429	C9
2430	C9
2441	B4
2442	B4
3300	E2
3302	F3
3303	D3
3304	E3
3306	H4
3307	F2
3308	F2
3309	H5
3310	G4
3311	H4
3312	H5
3313	G5
3314	H5
3315	H5
3316	G5
3317	F2
3318	F3
3320	E8
3321	F9
3322	F10
3323	F8
3324	G8
3325	G9
3326	G9
3330	F9
3331	E8
3332	F9
3334	F10
3340	G9
3341	G7
3342	H7
3343	H6
3344	H6
3345	H7
3350	G10
3351	G10
3352	G9
3353	H9
3369	E8
3370	E8
3400	C8
3401	C8
3402	C8
3404	B9
3405	B9
3406	C10
3407	B9
3408	B9
3409	B9
3412	B8
3413	B8
3414	B8
3420	E9
3421	C2
3422	E9
3423	D10
3424	E10
3425	D11
3426	D11
3427	E11
3428	D8
3429	D9
3430	D9
3431	B4
3432	B2
3433	C2
3434	A5
3435	B6
3436	B2
3438	C5
3439	D8
3440	D8
3441	D8
3442	B5
3443	C5
3444	C5
3451	B5
3452	B5
3454	E10
4311	G3
4316	G5
4410	D3
4413	F12
4414	F12
4420	B6
4425	C2
4426	H2
4427	H2
4429	C2
5300	E2
5301	E2
5302	F2
5305	C8
5306	C9
5307	C8
6300	E2
6310	I5
6311	I5
6334	F9
6340	G8
6341	H8
6344	H6
6350	G11
6354	H9
6420	E9
6422	E9
6424	D11
6429	D9
6430	H4
6431	D8
6432	C5
7300	C7
7341	G7
7351	G10
7402	A2
7403	B6
7417	G8
7418	D9
7419	C9
7420	C9
7424	D11
7425	A10
7430	B5
7431	B5
7438	D10

Small Signal Board: TXT and Control

0341 B7
0355 B6
0356 B5
0375 F9
1001 I10
2001 L16
2002 K17
2003 G17
2005 B18
2006 G16
2007 F17
2008 C13
2009 C12
2010 C12
2011 C12
2012 C12
2013 K11
2014 I10
2015 J9
2016 H10
2021 K9
2022 K11
2023 K11
2024 J17
2025 K10
2026 K10
2027 C13
2028 C13
2029 K18
2030 K16
2031 B21
2032 K17
2035 L18
2037 J5
2038 J5
2039 K4
2040 C8
2041 L15
2042 K15
2043 K15
2044 K15
2045 G17
2046 J17
2049 B21
2050 I16
2051 I16
2052 I16
2053 I16
2054 I18
2055 K10
3001 C8
3003-A E10
3003-B E10
3003-C E10
3003-D A10
3004-A D10
3004-B D10
3004-C D10
3004-D D10
3005-A D10
3005-B D10
3005-C D10
3005-D A10
3006 B9
3007 C10
3009-A E10
3009-B E10
3009-C B10
3009-D C10
3010 C10
3011 C9
3023-A L13
3023-B L13
3023-C L13
3023-D L13
3024 L13
3026 L15
3027-A F10
3027-B F10
3027-C F10
3027-D F10
3028-A F10
3028-B F10
3028-C F10
3028-D E10
3029 K15
3030-A K15
3030-B K15
3030-C K15
3030-D J15
3031 G10
3032 G10
3033-A G10
3033-B G10
3033-C G10
3033-D G10
3034 J8
3035 I8
3036-A H9
3036-B H9
3036-C H9
3036-D H9
3039 I7
3041 K17
3042 L16
3043 K17
3045 I5
3047 K11
3048-A K14
3048-B K14
3048-C K14
3048-D K14
3049-A D2
3049-B D2
3049-C D2
3049-D D2
3050-A D2
3050-B D2
3050-C E2
3050-D E2
3051-A E2
3051-B E2
3051-C E2
3051-D E2
3052-A E2
3052-B F2
3052-C F2
3052-D F2
3053-A F2
3053-B F2
3053-C F2
3053-D F2
3054-A G2
3054-B G2
3054-C G2
3054-D G2
3055-A G2
3055-B G2
3055-C G2
3055-D H2
3056-A H2
3056-B H2
3056-C H2
3056-D H2
3057-A H2
3057-B H2
3057-C I2
3057-D I2
3059 C7
3062 L18
3063 F20
3066 D5
3067 E5
3068 E6
3069 L14
3070 L17
3071 K18
3072 L18
3073 K17
3074 K4
3075 H10
3076 H10
3080-A J15
3080-B J15
3080-C J15
3080-D J15
3082 K9
3083 L8
3084 L8
3085 L9
3086 I15
3090-A H15
3090-B G15
3090-C G15
3090-D H15
3091-A H15
3091-B G15
3091-C G15
3091-D H15
3092-A H15
3092-B G15
3092-C G15
3092-D I15
3093-A H15
3093-B H15
3093-C G15
3093-D I15
3094-A E15
3094-B I15
3094-C I15
3094-D E15
3095-A C15
3095-B I15
3095-C C15
3095-D E15
3096-A C15
3096-B E15
3096-C D15
3096-D E15
3097-A D15
3097-B E15
3097-C D15
3097-D E15
3098-A D15
3098-B D15
3098-C D15
3098-D D15
3099-A F15
3099-B F15
3099-C F15
3099-D F15
3259 J5
3260 K4
3261 K4
3262 K4
3263 K5
3895 K3
4001 H4
4002 I4
4003 I4
4005 E4
4008 G4
4009 D4
4010 C6
4011 B8
4012 E4
4014 E4
4015 D5
4017 F16
4018 F16
4019 G4
4020 C6
4021 C7
4022 C8
4023 C8
4024 H8
4025 H8
4027 F16
4029 J9
4802 K4
5002 J5
6001 H7
6002 H6
6003 H8
6004 G5
6006 G8
6008 G5
6009 H5
6012 C5
6013 C10
6017 G6
6019 G7
6021 H7
6023 G8
6025 G9
6026 G10
6037 D7
6238 K5
6250 J4
7001 G17
7002 C17
7003 C11
7006 K16
7007 L18
7008 I9
7009 J17
7010 I8
7011 J8
7012 E7
7013 C20
7014 L18
7015 L19
7016 L17
7019 D6
7020 K9
7205 K5
7216 J4

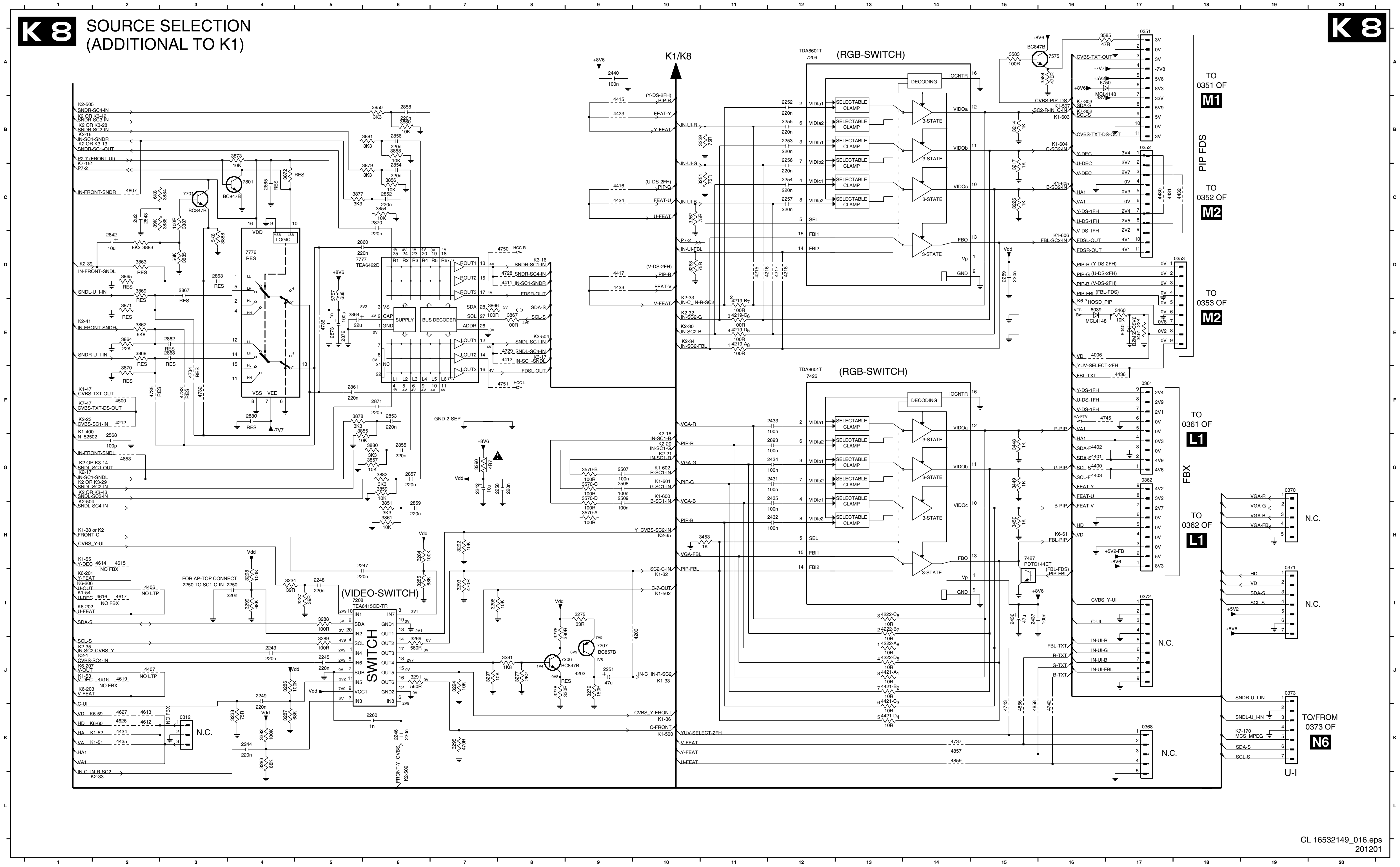

K 7
TXT & CONTROL
K 7
K1:K6
T11 R/77-7003
0.2V / div DC
1µs / div
T12 G/78-7003
0.2V / div DC
1µs / div
T13 B/79-7003
0.2V / div DC
1µs / div
T14 Fading/80-7003
0.2V / div DC
10µs / div
T16 CVBS/5-7003
0.2V / div DC
20µs / div
C1 Reset/c-7007
1V / div DC
10ms / div
C2 +3V3 DC
C3 6MHz/2016/1001
20mV / div AC
0.5µs / div
SERVICE-PINS
N.C.
FROM/TO 0241 OF E
SERVICE-DEFAULT
SERVICE-MODE
AUX-SUPPLY
MAINS_CLOCK
STBY_LED
PLVA2650A
PDTC144ET
PDTA114ET
BZX284-C3V9
NVM
M24C32
PMBT2369
BAT254
BC847B
BC857B
LF33CV
7003
SAA5801H
µC
EXTERNAL CODE AND DATA INTERFACE
CLOCK GENERATOR AND DISPLAY TIMING
TXT EPG CLOSE CAPTION USA
DISPLAY INTERFACE
7002
M27V160
ROM
7013
M29W400T
FLASH
7001
HYB3118165
RAM
+3V3-STANDBY
+5V-STBY
RESET-FLASH
LIGHT_SENSOR
P50_OUT
P2-7 (FRONT UI)
DC-PROT
BC-PROT
LNA
P2-6_STATUS 3
P2-5_STATUS 4
STANDBY
FRONT-DETECT
FBCSO
MCS_MPEG
P50_IN
SOUND-ENABLE
RESET-AUDIO
HD_HOME
SCAVEM_SW
SDA-F
SCL-F
SDA-S
SCL-S
HOSD_PIP
VFB
VD
CVBS-TXT-DS-OUT
B-TXT
G-TXT
R-TXT
6MHz
CL 16532149_015.eps
131201

OTC		
Pin nr.	Pin name	
93	P1-0/T0	Hd@home
98	P1-5/INT2	MCS/MPEG
108	P2-5/ADC3	STATUS 4
109	P2-6/ADC4	STATUS 3
110	P2-7/ADC5	RGB1fh/frontUI
115	P3-2	n.a.
118	P3-5/TTD	n.a.

CL 16532149_015.eps
131201

Small Signal Board: Source Selection (Additional to K1)

0312 K3
0351 A17
0352 B17
0353 D18
0361 F17
0362 G17
0368 K17
0370 G19
0371 I19
0372 I17
0373 J19
2242 G7
2243 J4
2244 K4
2245 J5
2246 K6
2247 H6
2248 I5
2249 J4
2250 I4
2251 J9
2252 B12
2253 B12
2254 C12
2255 B12
2256 B12
2257 C12
2258 G8
2259 D15
2260 K6
2431 G12
2432 H12
2433 F12
2434 G12
2435 G12
2436 I15
2437 I15
2440 A9
2507 G9
2508 G9
2509 G9
2568 G2
2842 D2
2843 C2
2852 C6
2853 F6
2854 C6
2855 G6
2856 B6
2857 G6
2858 B6
2859 H6
2860 D6
2861 F5
2862 E3
2863 D3
2864 E5
2865 C4
2867 D3
2868 E3
2870 C6
2871 F6
2872 E5
2873 E5
2880 F4
2893 G12
3214 B15
3217 C15
3226 C15
3234 I4
3237 I5
3238 K4
3239 B11
3251 C11
3267 C10
3268 D10
3269 J6
3275 I9
3276 I8
3277 J8
3278 J8
3279 J9
3281 J8
3282 K4
3283 K4
3284 H6
3285 I6
3286 J4
3287 K4
3288 I5
3289 J5
3290 G7
3291 J6
3292 H7
3293 I7
3294 J7
3295 K7
3296 I7
3297 J7
3298 I4
3299 I4
3448 G15
3449 G15
3450 H15
3453 H11
3460 E17
3461 E17
3570-A H9
3570-B G9
3570-C G9
3570-D G9
3583 A15
3584 A16
3585 A17
3850 B6
3851 H6
3854 C6
3855 F6
3856 C6
3857 G6
3858 B6
3859 G6
3860 B6
3861 H6
3862 E2
3863 D2
3864 E2
3865 D2
3866 E7
3867 E8
3868 E2
3869 D2
3870 F2
3871 E2
3872 C4
3873 B4
3877 C5
3878 F5
3879 C6
3880 G6
3881 B6
3882 G6
3883 D2
3884 C3
3885 D3
3886 C3
3887 C3
3888 D3
4006 E16
4202 J9
4203 I10
4212 F2
4215 D11
4216 D11
4217 D12
4218 D12
4219-A E11
4219-B E11
4219-C E11
4219-D E11
4222-A J13
4222-B I13
4222-C I13
4222-D J13
4400 G16
4401 G16
4402 G16
4403 G16
4406 I2
4407 J2
4411 D8
4412 E8
4415 B9
4416 C9
4417 D9
4421-A J13
4421-B J13
4421-C J13
4421-D K13
4423 B9
4424 C9
4430 C17
4431 C17
4432 C18
4433 D9
4434 K2
4435 K2
4436 F17
4500 F2
4612 K2
4613 K2
4614 H2
4615 H2
4616 I2
4617 I2
4618 J2
4619 J2
4626 K2
4627 K2
4728 D8
4729 E8
4732 F3
4733 F3
4734 F3
4735 F2
4736 E5
4737 K14
4742 K16
4743 K15
4745 F17
4750 D8
4751 F8
4807 C2
4853 G2
4856 K15
4857 K14
4858 K15
4859 K14
5757 D5
6039 E16
6040 E17
6750 A16
7206 J8
7207 J9
7208 I5
7209 A12
7426 F12
7427 H15
7575 A16
7701 C3
7776 D4
7777 D5
7801 C4

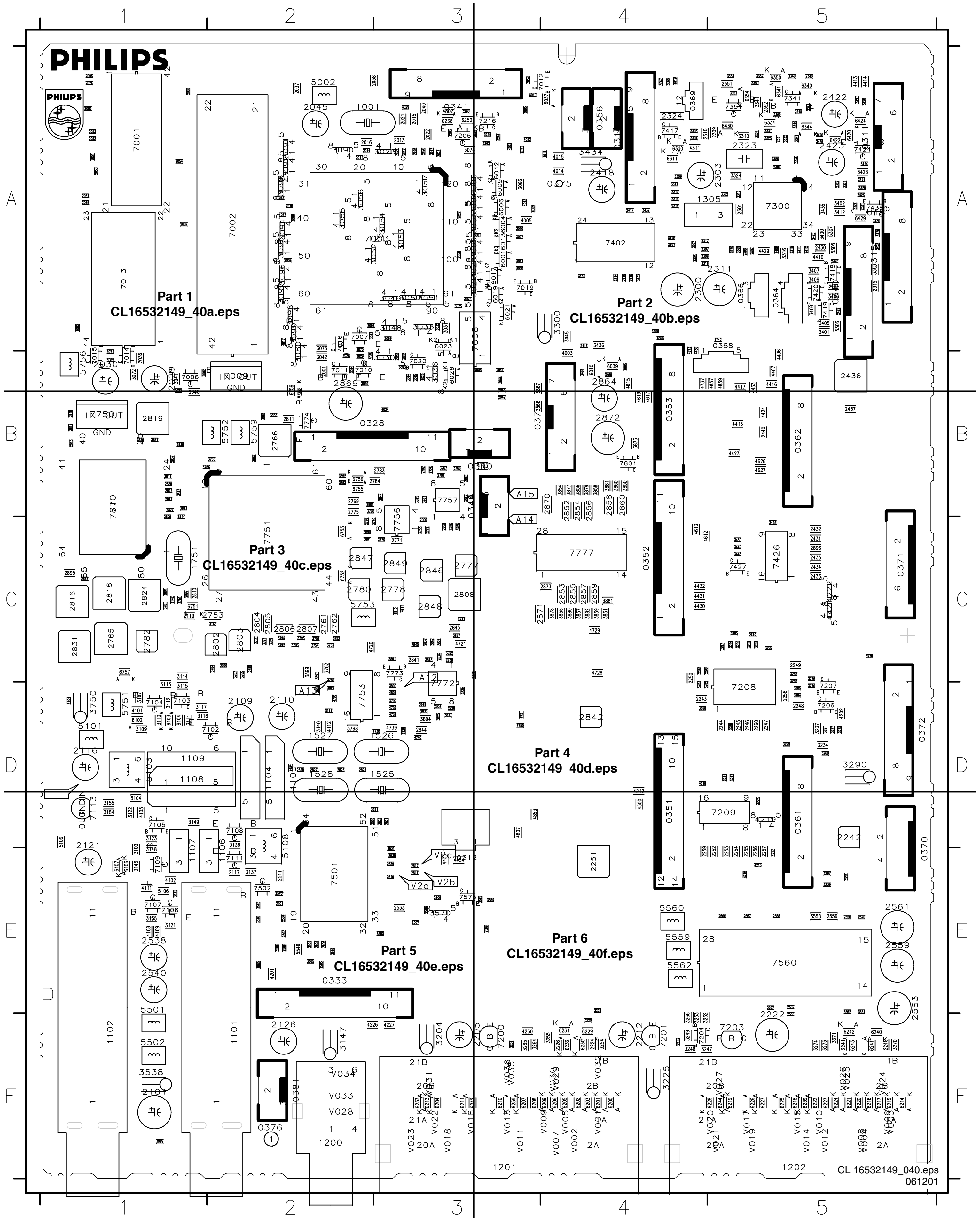

K 8
SOURCE SELECTION
(ADDITIONAL TO K1)
K1/K8
TDA8601T
7209
(RGB-SWITCH)
TDA8601T
7426
(RGB-SWITCH)
DECODING
SELECTABLE CLAMP
3-STATE
TEA6422D
7777
SUPPLY
BUS DECODER
(VIDEO-SWITCH)
7208
TEA6415CD-TR
SWITCH
7701
BC847B
7801
BC847B
7206
BC847B
7207
BC857B
7575
BC847B
7427
PDTC144ET
7776
RES
LOGIC
TO
0351 OF
M1
TO
0352 OF
M2
TO
0353 OF
M2
PIP FDS
TO
0361 OF
L1
TO
0362 OF
L1
FBX
TO/FROM
0373 OF
N6
U-I
N.C.
FOR AP-TOP CONNECT
2250 TO SC1-C-IN
GND-2-SEP
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
A
B
C
D
E
F
G
H
I
J
K
L

CL 16532149_016.eps
201201

Diversity table Small Signal Board [K8]		
Item	no DW-module	DW-module
0351	-	X
0352	-	X
0353	-	X
0370	-	-
0371	-	-
2431	-	-
2432	-	-
2433	-	-
2434	-	-
2435	-	-
2437	-	-
2440	-	-
2893	-	-
3445	-	-
3446	-	-
3447	-	-
3448	-	-
3449	-	-
3450	-	-
3453	-	-
3583	-	100R
3584	-	470R
3585	-	47R
4222	-	-
4421	-	4x10R
4423	Jumper	Jumper
4424	Jumper	Jumper
4430	Jumper	-
4431	Jumper	-
4432	Jumper	-
4433	Jumper	Jumper
4436	-	Jumper
4500	Jumper	Jumper
7426	-	-
7427	-	-
7428	-	-
7429	-	-
7575	-	BC847B

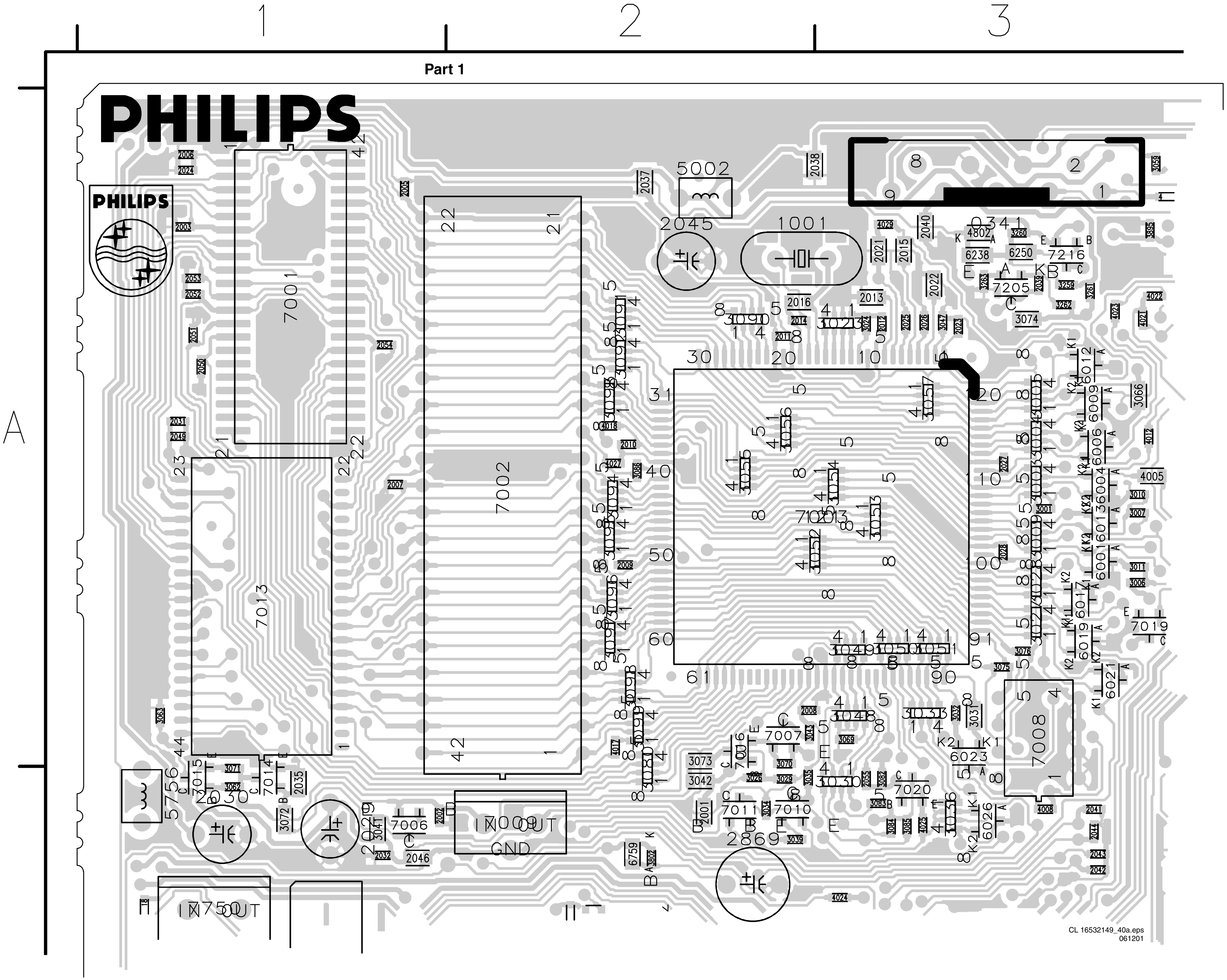
Small Signal Panel [K8] (for readability)	
Item	
2842	10 F
2843	2,2 F
2852	220nF
2853	220nF
2854	220nF
2855	220nF
2856	220nF
2857	220nF
2858	220nF
2859	220nF
2860	220nF
2861	220nF
2864	22 F
2870	220nF
2871	220nF
2872	100 F
2873	1nF
3850	3k3
3851	3k3
3854	10k
3855	10k
3856	10k
3857	10k
3858	10k
3859	10k
3860	10k
3861	10k
3862	6k8
3864	22k
3866	100R
3867	100R
3877	3k3
3878	3k3
3879	3k3
3880	3k3
3881	3k3
3882	3k3
3883	8k2
3884	6k8
3885	56k
3886	39k
3887	100R
3888	5k6
4411	-
4412	-
4728	-
4729	-
4732	Jumper
4736	Jumper
5757	6,8 H
7701	BC847B
7777	TEA6422D

Layout Small Signal Board (Top Overview)



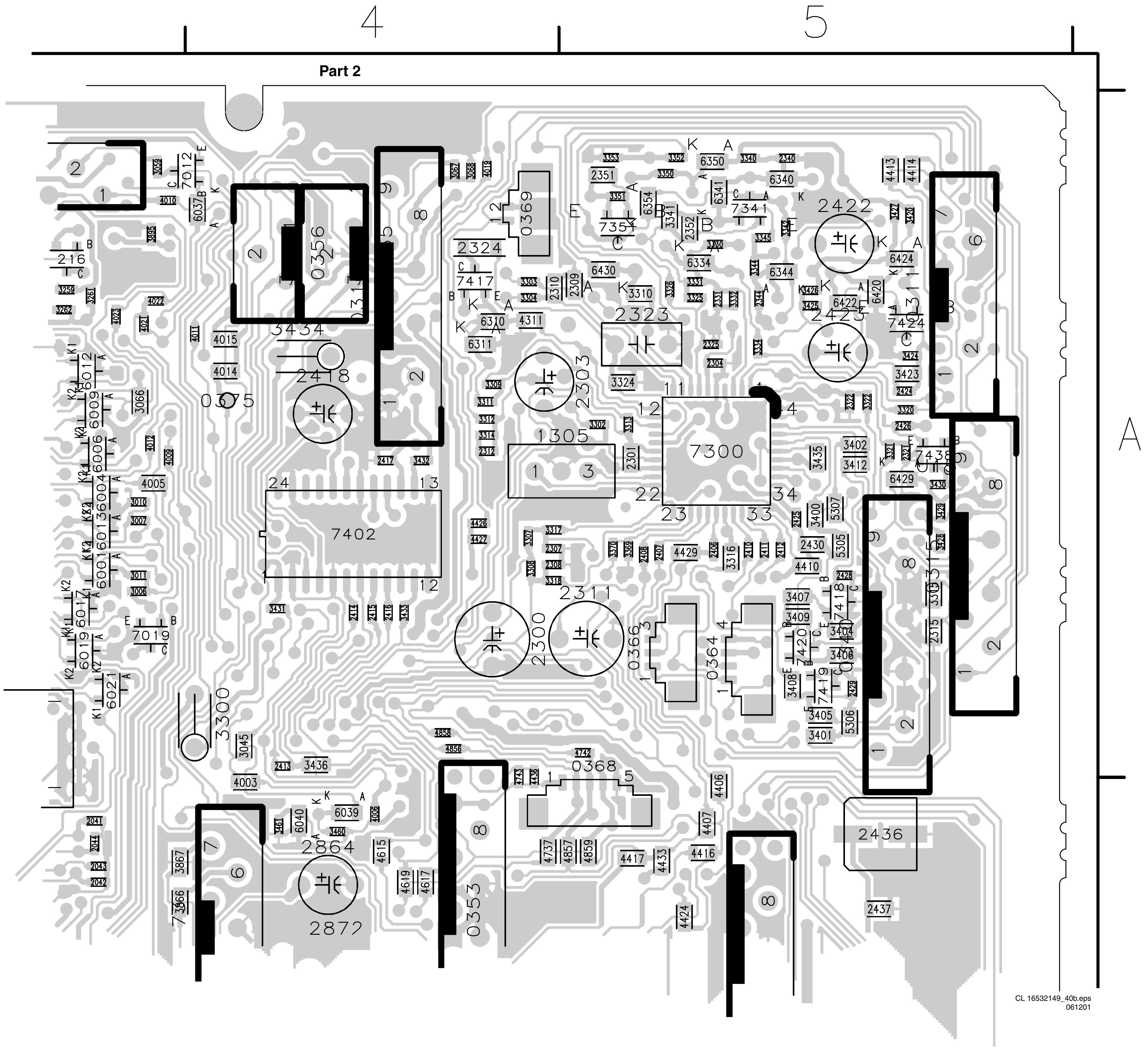
0310	A4
0311	A5
0312	D3
0315	A5
0328	B2
0333	E2
0340	A5
0341	A3
0344	C3
0348	B3
0351	D4
0352	C4
0353	B4
0355	A4
0356	A4
0360	B3
0361	D5
0362	B5
0364	A5
0366	A5
0368	B5
0369	A4
0370	E5
0371	C5
0372	D5
0373	B4
0375	A4
0376	F2
0381	F2
1001	A2
1101	F1
1102	F1
1104	D2
1105	D2
1106	D2
1107	D1
1108	D1
1109	D1
1200	F2
1201	F3
1202	F5
1305	A4
1525	D3
1526	D2
1527	D2
1528	D2
1751	C1
2001	B2
2002	B1
2003	A1
2005	A1
2006	A1
2007	A1
2008	A2
2009	A2
2010	A2
2011	A2
2012	A3
2013	A3
2014	A2
2015	A3
2016	A2
2021	A3
2022	A3
2023	A3
2024	A1
2025	A3
2026	A3
2027	A3
2028	A3
2029	B1
2030	B1
2031	A1
2032	B1
2035	B1
2037	A2
2038	A2
2039	A3
2040	A3
2041	B3
2042	B3
2043	B3
2044	B3
2045	A2
2046	B1
2049	A1
2050	A1
2051	A1
2052	A1
2053	A1
2054	A1
2055	B3
2101	F1
2109	D2
2110	D2
2116	D1
2117	E2
2119	C1
2121	D1
2126	F2
2204	F3
2205	F3
2212	F4
2213	F4
2222	F5
2224	F4
2226	F4
2240	F5
2241	F5
2242	D5
2243	D4
2244	D5
2245	D5
2246	D5
2247	D5
2248	D5
2249	C5
2250	C4
2251	D4
2252	E5
2253	E5
2254	E5
2255	E5
2256	E5
2257	E5
2258	D5
2259	E4
2260	D5
2300	A4
2301	A5
2303	A5
2304	A5
2307	A4
2308	A4
2309	A5
2310	A4
2311	A5
2312	A4
2315	A5
2321	A5
2322	A5
2323	A5
2324	A4
2325	A5
2331	A5
2340	A5
2344	A5
2351	A5
2352	A5
2406	A5
2407	A5
2408	A5
2410	A5
2411	A5
2412	A5
2413	A4
2414	A4
2415	A4
2416	A4
2417	A4
2418	A4
2422	A5
2423	A5
2424	A5
2425	A5
2426	A5
2428	A5
2429	A5
2430	A5
2431	C5
2432	C5
2433	C5
2434	C5
2435	C5
2436	B5
2437	B5
2440	B5
2501	E2
2502	E2
2503	E2
2504	E2
2505	E2
2506	E2
2507	E3
2508	E3
2509	E3
2510	E3
2511	E3
2512	E3
2520	D2
2521	D3
2522	D3
2525	D2
2526	D2
2527	D2
2528	D2
2533	E3
2538	E1
2539	E3
2540	E1
2541	E2
2545	E2
2550	E5
2555	F5
2556	E5
2557	E5
2558	E5
2559	E5
2560	E5
2561	E5
2562	E5
2563	E5
2565	E2
2566	E2
2568	E3
2570	E5
2751	C1
2753	C2
2761	C2
2762	C2
2765	C1
2766	B2
2769	B2
2770	C3
2771	C3
2772	C3
2775	B2
2776	C2
2777	C3
2778	C3
2780	C2
2782	C1
2783	B3
2784	B3
2790	C3
2791	B3
2792	B3
2801	C1
2802	C1
2803	C2
2804	C2
2805	C2
2806	C2
2807	C2
2808	C3
2810	C1
2811	B2
2813	B1
2815	C1
2816	C1
2817	B1
2818	C1
2819	B1
2820	B1
2822	B1
2824	C1
2826	D3
2827	B1
2829	C1
2831	C1
2832	C3
2833	D3
2834	C3
2837	B1
2838	C3
2839	D3
2840	C3
2841	C3
2842	D4
2844	D3
2845	C3
2846	C3
2847	C2
2848	C3
2849	C3
2851	D3
2852	C4
2853	C4
2854	C4
2855	C4
2856	B4
2857	C4
2858	B4
2859	C4
2860	B4
2864	B4
2869	B2
2870	B3
2871	C3
2872	B4
2873	C4
2893	C5
2895	C1
2897	C1
2900	C3
2901	B2
3001	A3
3003	A3
3004	A3
3005	A3
3006	A3
3007	A3
3009	A3
3010	A3
3011	A3
3023	A3
3024	A3
3026	B2
3027	A3
3028	A3
3029	B2
3030	A3
3031	A3
3032	A3
3033	A3
3034	B2
3035	B2
3036	B3
3039	B2
3041	B1
3042	B2
3043	A2
3045	A4
3047	A3
3048	A3
3049	A3
3050	A3
3051	A3
3052	A3
3053	A3
3054	A2
3055	A2
3056	A2
3057	A3
3059	A3
3062	B1
3063	A1
3066	A3
3067	A4
3068	A4
3069	A3
3070	A2
3071	B1
3072	B1
3073	A2
3074	A3
3075	A3
3076	A3
3080	B2
3082	B3
3083	B3
3084	B3
3085	B3
3086	A2
3090	A2
3091	A2
3092	A2
3093	A2
3094	A2
3095	A2
3096	A2
3097	A2
3098	A2
3099	A2
3102	E1
3107	D1
3109	D1
3110	D1
3111	D1
3112	D1
3113	D1
3114	C1
3115	D1
3116	D1
3117	D1
3121	E1
3122	D1
3123	D1
3124	D2
3135	E1
3136	D2
3137	E2
3140	D2
3141	D2
3142	C1
3143	C2
3145	E1
3146	E1
3147	F2
3148	E1
3149	D1
3154	D1
3155	D1
3204	F3
3214	D5
3217	D5
3225	F4
3226	D5
3228	E4
3229	F4
3234	D5
3237	D5
3238	C5
3239	E5
3247	F4
3248	F4
3249	F4
3251	E5
3252	F4
3253	F4
3254	F4
3255	F4
3259	A3
3260	A3
3261	A3
3262	A3
3263	A3
3264	F3
3265	F3
3266	F4
3267	E5
3268	D5
3269	C5
3270	F5
3271	F5
3273	F5
3274	F5
3275	C5
3276	D5
3277	D5
3278	D5
3279	D5
3281	D5
3282	D4
3283	D4
3284	D5
3285	D5
3286	C5
3287	C5
3288	D4
3289	D5
3290	D5
3291	C5
3292	C5
3293	C5
3294	C5
3295	C5
3296	C5
3297	C5
3298	C4
3299	C4
3300	A3
3302	A5
3303	A4
3304	A4
3307	A4
3308	A4
3309	A4
3310	A5
3311	A4
3312	A4
3313	A5
3314	A4
3315	A5
3316	A5
3317	A4
3318	A4
3320	A5
3321	A5
3322	A5
3324	A5
3325	A5
3326	A5
3330	A5
3331	A5
3332	A5
3334	A5
3340	A5
3341	A5
3342	A5
3344	A5
3345	A5
3350	A5
3351	A5
3352	A5
3353	A5
3369	A5
3370	A5
3400	A5
3401	A5
3402	A5
3404	A5
3405	A5
3406	A5
3407	A5
3408	A5
3409	A5
3412	A5
3420	A5
3423	A5
3424	A5
3425	A5
3426	A5
3427	A5
3428	A5
3429	A5
3430	A5
3431	A4
3432	A4
3433	A4
3434	A4
3435	A5
3436	A4
3448	C5
3449	C5
3450	C5
3453	C5
3460	B4
3461	B4
3521	D3
3530	E3
3531	E3
3538	F1
3545	E2
3546	E2
3551	E5
3552	E5
3557	E5
3558	E5
3560	E2
3565	E2
3566	E2
3569	E2
3570	E3
3583	E3
3584	E3
3585	E3
3750	C1
3751	C2
3752	C2
3753	C2
3754	C2
3755	B2
3756	B1
3758	C3
3760	C2
3761	B3
3762	C2
3765	C3
3766	C3
3767	B3
3768	B3
3780	B2
3781	C1
3782	C2
3784	C2
3785	C2
3786	C2
3787	C2
3788	C2
3789	C2
3790	C2
3791	C2
3792	C2
3793	C2
3794	C2
3795	C2
3798	D2
3799	D3
3800	D3
3801	C3
3802	B2
3811	B1
3812	B1
3813	B1
3814	C1
3818	B1
3819	B1
3820	C3
3821	C3
3822	C3
3825	D3
3827	C3
3828	D3
3829	D2
3833	B2
3837	D3
3838	B1
3839	B1
3840	B2
3841	B1
3842	C3
3844	B3
3845	B3
3846	B3
3847	B3
3848	C3
3849	D3
3850	B4
3851	C4
3852	B2
3853	B2
3854	B4
3855	C4
3856	B4
3857	C4
3858	B4
3859	C4
3860	B4
3861	C4
3866	B3
3867	B3
3873	B4
3877	B4
3878	C4
3879	B4
3880	C4
3881	B4
3882	C4
3890	C2
3891	C2
3894	D3
3895	A3
3897	C2
3898	D2
3899	C2
3999	F1
4003	B4
4005	A3
4006	B4
4008	B3
4009	A3
4010	A3
4011	A4
4012	A3
4014	A4
4015	A4
4017	A2
4018	A2
4019	A4
4021	A3
4022	A3
4023	A3
4024	B3
4025	B3
4027	A2
4029	A3
4101	D1
4102	E1
4105	D1
4108	E1
4109	E1
4111	E1
4112	D2
4201	E2
4202	D5
4212	D4
4215	E5
4216	E5
4217	E5
4218	D4
4219	D5
4222	C5
4226	F2
4227	F3
4230	F3
4311	A4
4406	B5
4407	B5
4410	A5
4413	A5
4414	A5
4415	B5
4416	B5
4417	B5
4421	C5
4423	B5
4424	B5
4426	A4
4427	A4
4429	A5
4430	C4
4431	C4
4432	C4
4433	B5
4434	E3
4435	E3
4436	A4
4500	D4
4612	C4
4613	C4
4615	B4
4617	B4
4619	B4
4626	B5
4627	B5
4702	D3
4703	D2
4704	D1
4720	C2
4721	C3
4725	B3
4726	B3
4728	C4
4729	C4
4730	D3
4737	B4
4738	D3
4739	D3
4740	D3
4741	C3
4742	A5
4743	A4
4750	D3
4751	D3
4801	D3
4802	A3
4807	D3
4810	C3
4811	C3
4853	D3
4856	A4
4857	B5
4858	A4
4859	B5
4862	B2
5002	A2
5101	D1
5103	D1
5104	D1
5106	E1
5108	D2
5109	D1
5305	A5
5306	A5
5307	A5
5501	E1
5502	F1
5540	E2
5559	E4
5560	E4
5562	E4
5751	D1
5752	B1
5753	C3
5756	B1
5759	B2
6001	A3
6004	A3
6006	A3
6009	A3
6012	A3
6013	A3
6017	A3
6019	A3
6021	A3
6023	A3
6026	B3
6037	A4
6039	B4
6040	B4
6102	D1
6103	D1
6104	D1
6106	D1
6107	D1
6200	F4
6201	F4
6202	F4
6203	F4
6204	F3
6205	F4
6206	F4
6207	F3
6208	F3
6209	F4
6210	F3
6211	F3
6212	F3
6213	F3
6214	F5
6215	F5
6216	F5
6217	F5
6218	F5
6219	F5
6220	F5
6221	F5
6222	F5
6223	F5
6224	F5
6225	F5
6226	F5
6227	F5
6228	F4
6229	F4
6230	F4
6231	F4
6232	F4
6233	F3
6238	A3
6239	F5
6240	F5
6241	F5
6242	F5
6243	F5
6244	F5
6250	A3
6259	F3
6310	A4
6311	A4
6334	A5
6340	A5
6341	A5
6344	A5
6350	A5
6354	A5
6420	A5
6422	A5
6424	A5
6429	A5
6430	A5
6751	C1
6752	C2
6753	C2
6755	B2
6756	B2
6757	C1
6759	B2
7001	A1
7002	A1
7003	A2
7006	B1
7007	A2
7008	A3
7009	B2
7010	B3
7011	B2
7012	A4
7013	A1
7014	B1
7015	B1
7016	A2
7019	A3
7020	B3
7102	D2
7103	D1
7104	D1
7105	D1
7106	E1
7107	E1
7108	D2
7109	E1
7111	E2
7113	D1
7200	F3
7201	F4
7203	F5
7204	F5
7205	A3
7206	D5
7207	C5
7208	C5
7209	D4
7216	A3
7300	A5
7341	A5
7351	A5
7402	A4
7417	A4
7418	A5
7419	A5
7420	A5
7424	A5
7426	C5
7427	C5
7438	A5
7501	D2
7502	E2
7560	E5
7575	E3
7750	B1
7751	B2
7753	C2
7756	B3
7757	B3
7770	B1
7772	D3
7773	C3
7774	B2
7777	C4
7801	B4

Layout Small Signal Board (Top View Part 1)


1
2
3
A
Part 1
PHILIPS
7001
7002
7013
7012
7008
5002
1001
2045
2030
2869
5756
7006
7007
7010
7011
7014
7015
7016
7019
7020
7205
7216
7009
7750
6023
6026
3074
3066
4005
IN OUT GND

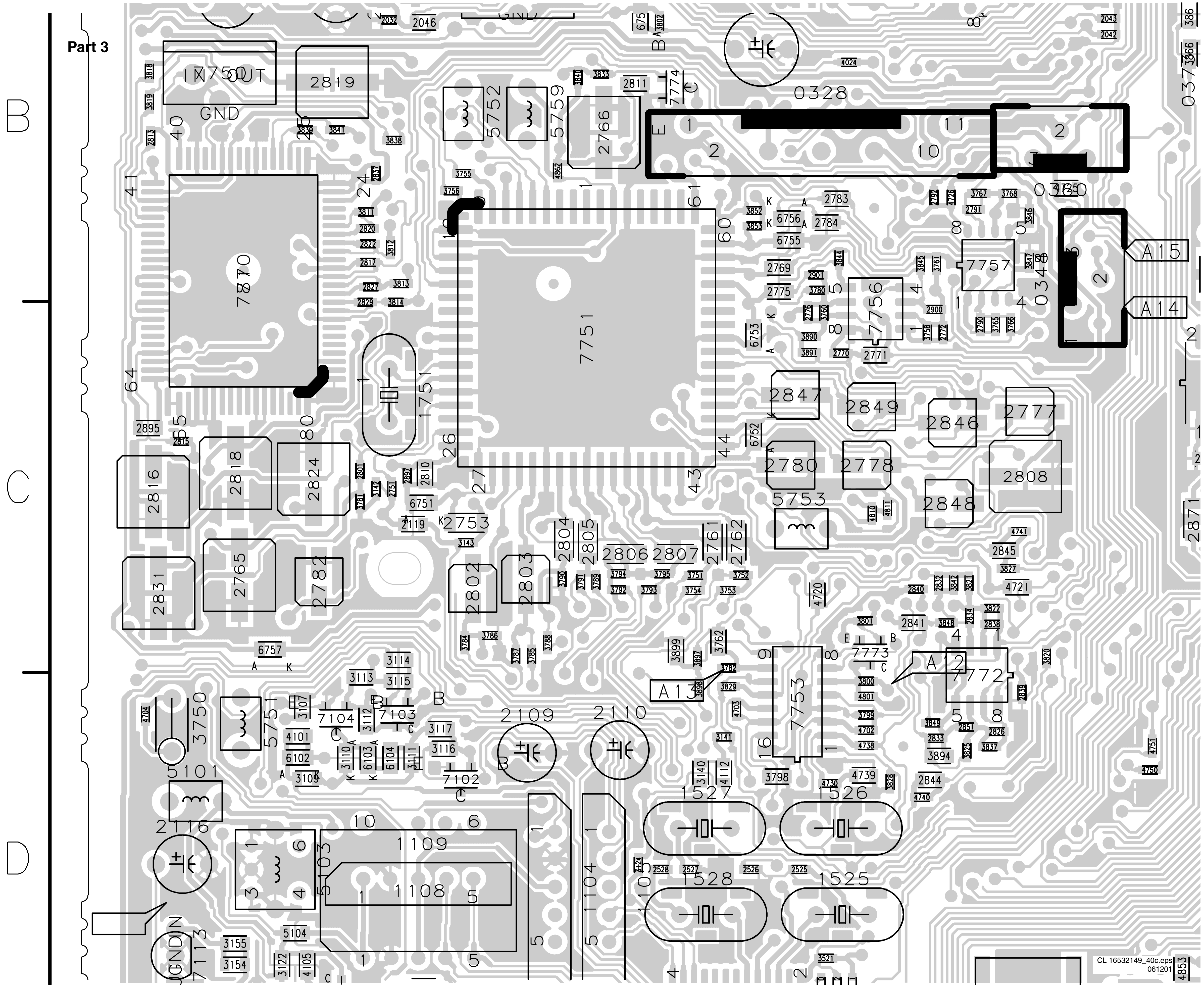
CL 16532149_40a.eps
061201

Layout Small Signal Board (Top View Part 2)


4
5
A
Part 2
7300
7402
1305
0369
0356
0313
0366
0364
0368
0353
0375
2422
2423
2418
2303
2300
2311
2323
2324
2436
2437
2864
2872
3300
3434
7341
7351
7417
7424
7438
7418
7420
7419
7012
7019
6350
6340
6334
6344
6424
6420
6422
6430
6310
6311
6429
6039
6040
6012
6009
6006
6004
6013
6001
6017
6019
6021
6037
3310
3324
3402
3412
3435
3400
3423
3407
3409
3404
3406
3408
3405
3401
3436
3045
3066
3867
4311
4429
4410
4015
4014
4005
4003
4406
4407
4416
4417
4433
4424
4615
4619
4617
4737
4857
4859
5305
5306
5307
2430
2431
2351
216
K
A
B
C
E

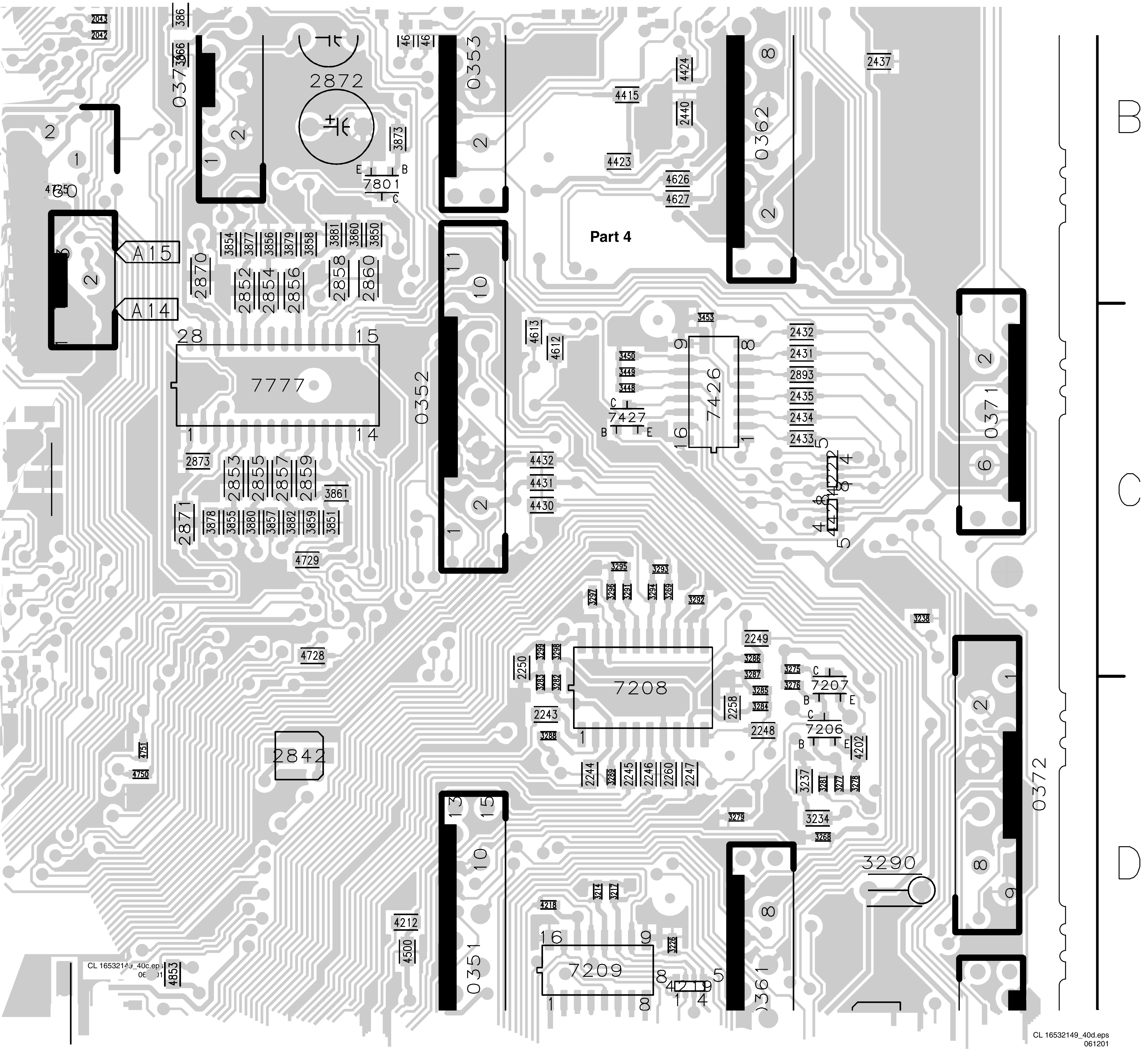
CL 16532149_40b.eps
061201

Layout Small Signal Board (Top View Part 3)


Part 3
B
C
D
7750
IN
OUT
GND
2819
5752
5759
2766
2811
7774
0328
0380
0348
A15
A14
7870
7751
1751
7757
7756
2771
2847
2849
2846
2777
2780
2778
2808
5753
2848
2816
2818
2824
2765
2831
2782
2802
2803
2804
2805
2806
2807
2761
2762
2753
6751
6757
7773
7772
A12
A13
7753
3750
5751
7104
7103
7102
2109
2110
5101
2116
5103
1109
1108
1104
1105
1527
1526
1528
1525
5104
7113
2845
4721
2841
2844
3894
2895
2871
2783
2784
6756
6755
2769
2775
6753
6752
3899
3762
3798
4739
3140
4112
3113
3114
3115
3117
3116
4101
6102
3109
3110
6103
6104
3111
3112
3107
3155
3154
3122
4105
2032
2046
675
4024
2043
2042
386

CL 16532149_40c.eps
061201

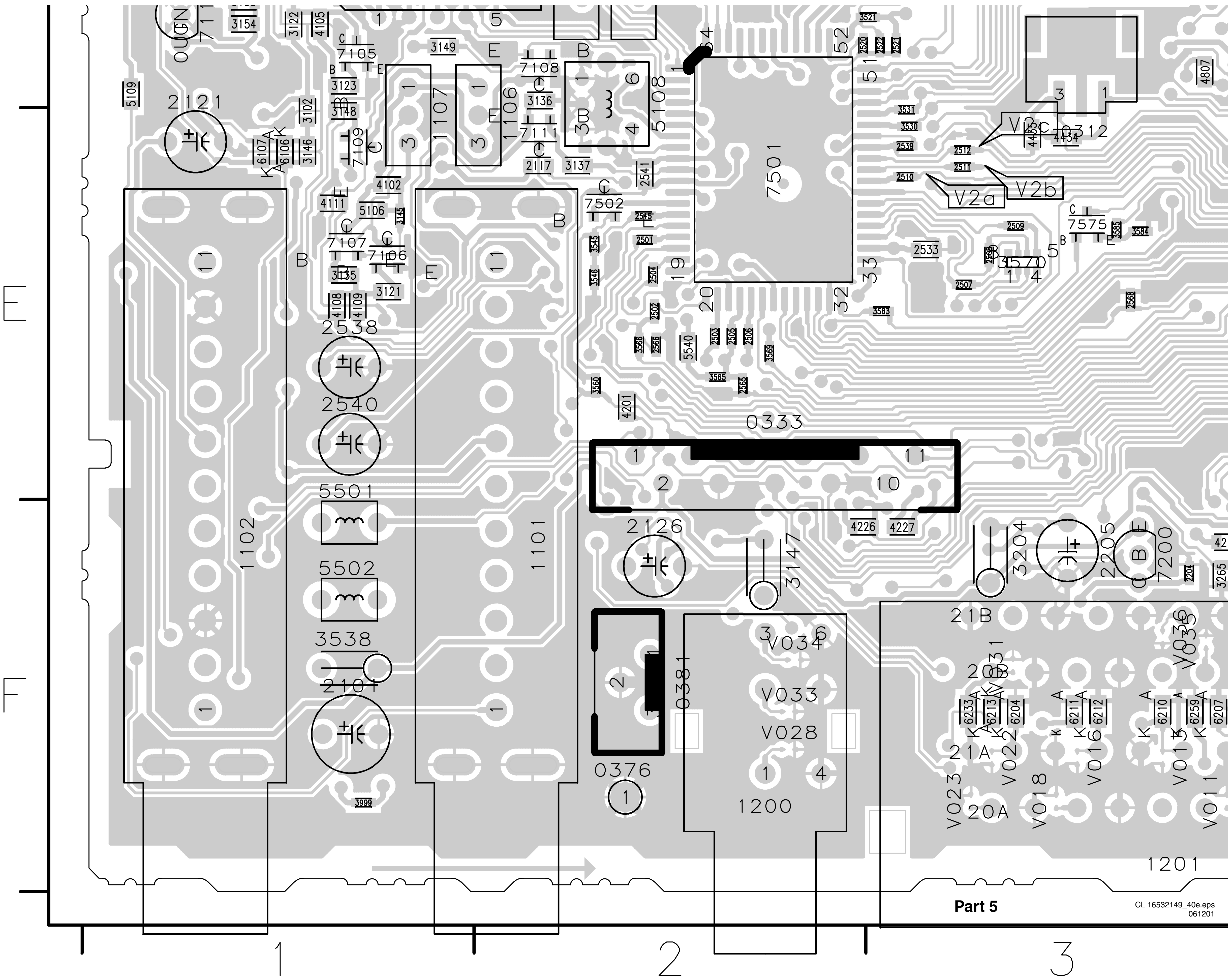
Layout Small Signal Board (Top View Part 4)



Part 4
B
C
D
2043
2042
386
3866
0373
2872
3873
7801
E
B
C
0353
4424
4415
2440
4423
4626
4627
0362
2437
A15
A14
2
1
4725
3854
3877
3856
3879
3858
3881
3860
3850
2870
2852
2854
2856
2858
2860
28
15
7777
1
14
0352
11
10
4613
4612
3453
3450
3449
3448
7427
7426
2432
2431
2893
2435
2434
2433
0371
2873
2853
2855
2857
2859
3861
2871
3878
3855
3880
3857
3882
3859
3851
4729
4432
4431
4430
3295
3293
3297
3296
3291
3294
3269
3292
3238
2249
3286
3287
3285
3284
3275
3276
7207
7206
2250
3299
3298
3283
3282
7208
2243
3288
2258
2248
4202
4728
2842
4751
4750
2244
3289
2245
2246
2260
2247
3237
3281
3277
3278
3279
3234
3268
3290
0372
13
15
10
0351
4218
3214
3217
4212
4500
16
9
7209
8
3226
0361
4853
CL 16532149_40c.eps

CL 16532149_40d.eps
061201

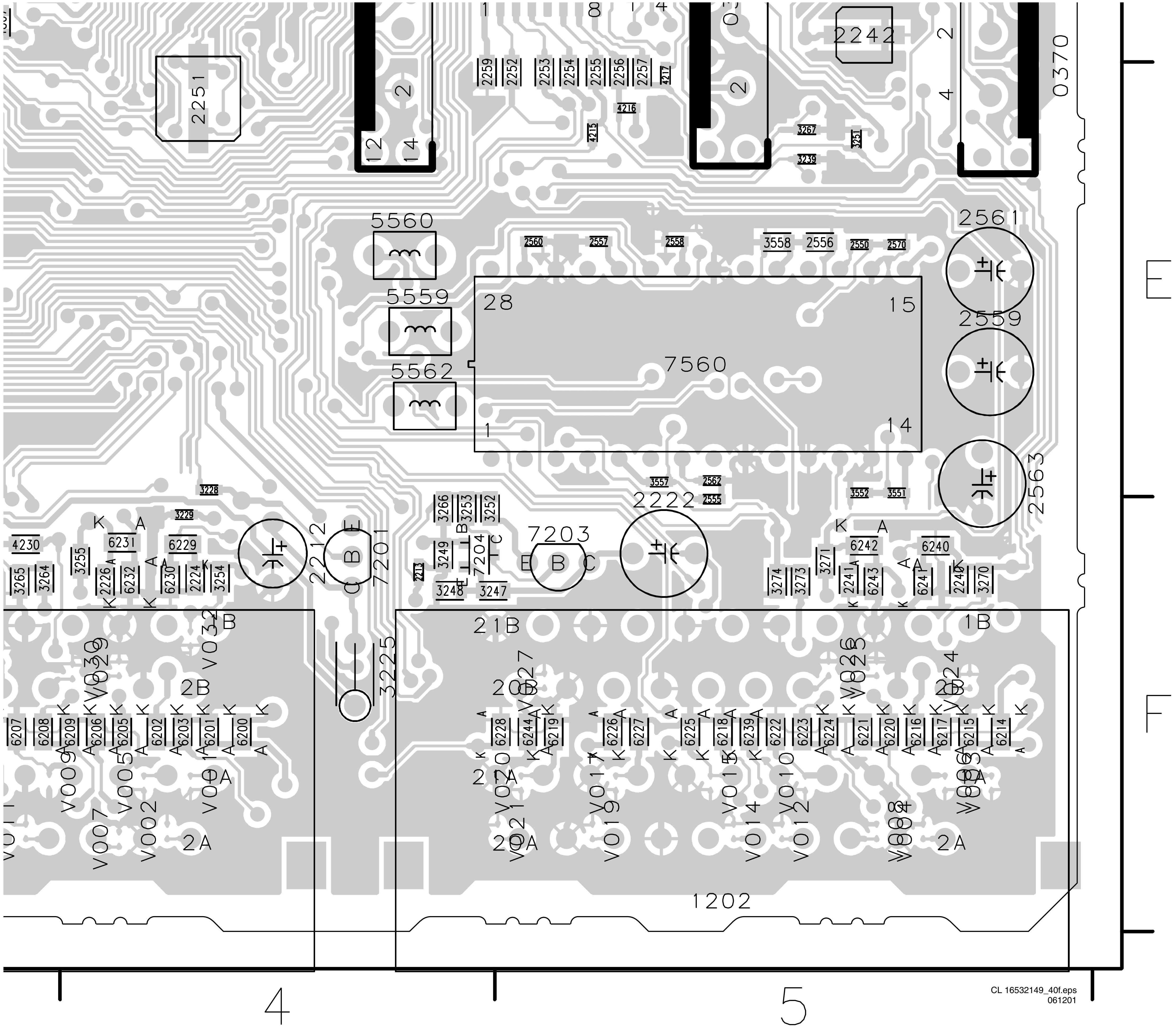
Layout Small Signal Board (Top View Part 5)


3154
3122
4105
3149
7105
3123
3148
3102
3146
6107
6106
7109
5109
2121
1107
1106
7108
3136
7111
2117
3137
5108
7501
3521
2520
2522
2521
4807
3531
3530
2539
2512
2511
2510
V2a
V2b
4435
4434
7575
3585
3584
2509
2533
3570
2507
3583
2568
7502
2541
2543
2501
3545
3546
2504
2502
3566
2566
5540
2503
2505
2506
3569
3565
2565
3560
4201
4102
4111
5106
3145
7107
7106
3135
3121
4108
4109
2538
2540
5501
5502
3538
2101
3999
1102
1101
0333
4226
4227
2126
3147
3204
2205
7200
2204
3265
0381
0376
1200
V034
V033
V028
1201
21B
20B
21A
20A
6233
6213
6204
6211
6212
6210
6259
6207
V023
V022
V018
V016
V015
V011
V036
V035
V031
E
F
1
2
3

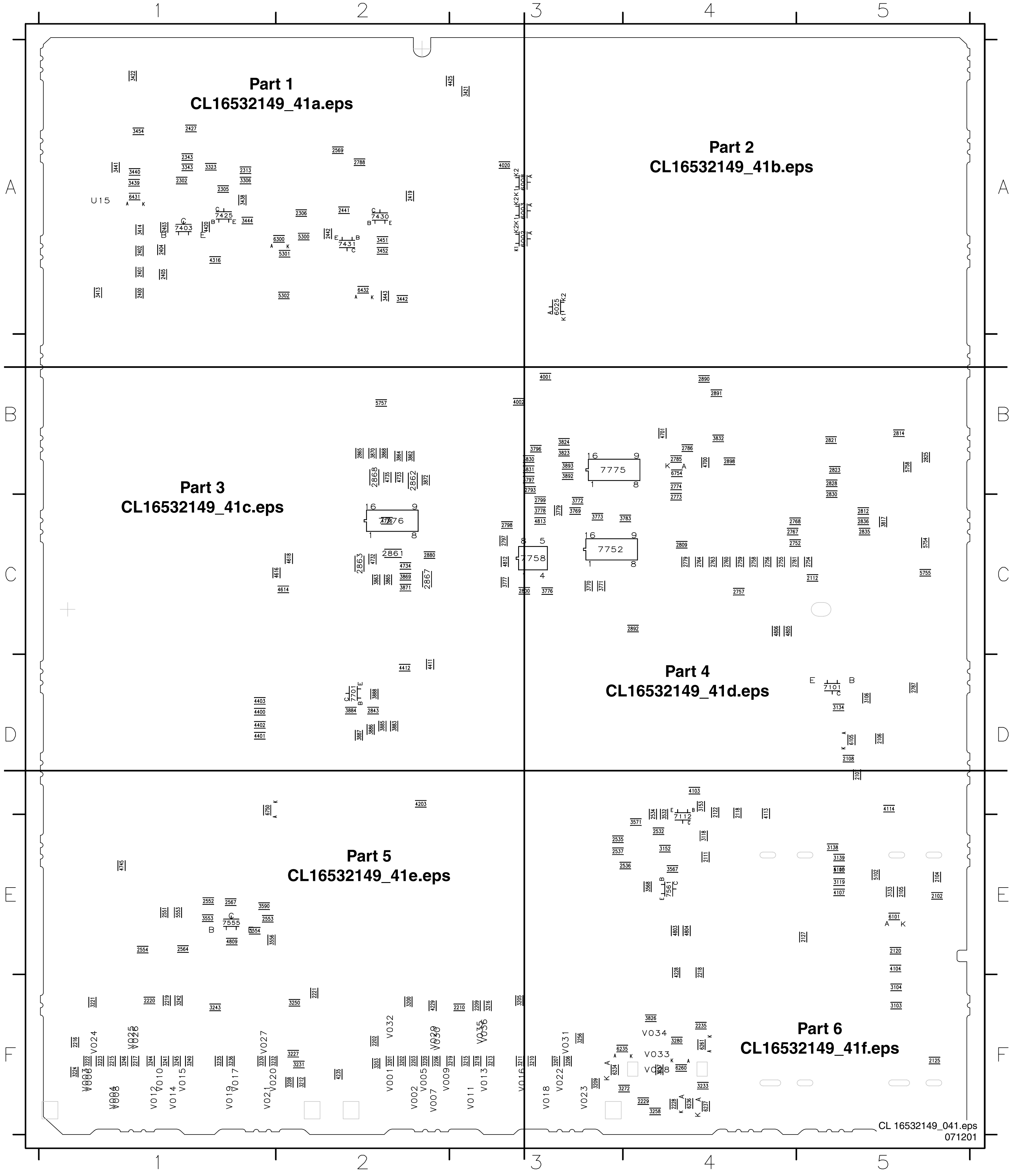
Part 5

CL 16532149_40e.eps
061201

Layout Small Signal Board (Top View Part 6)

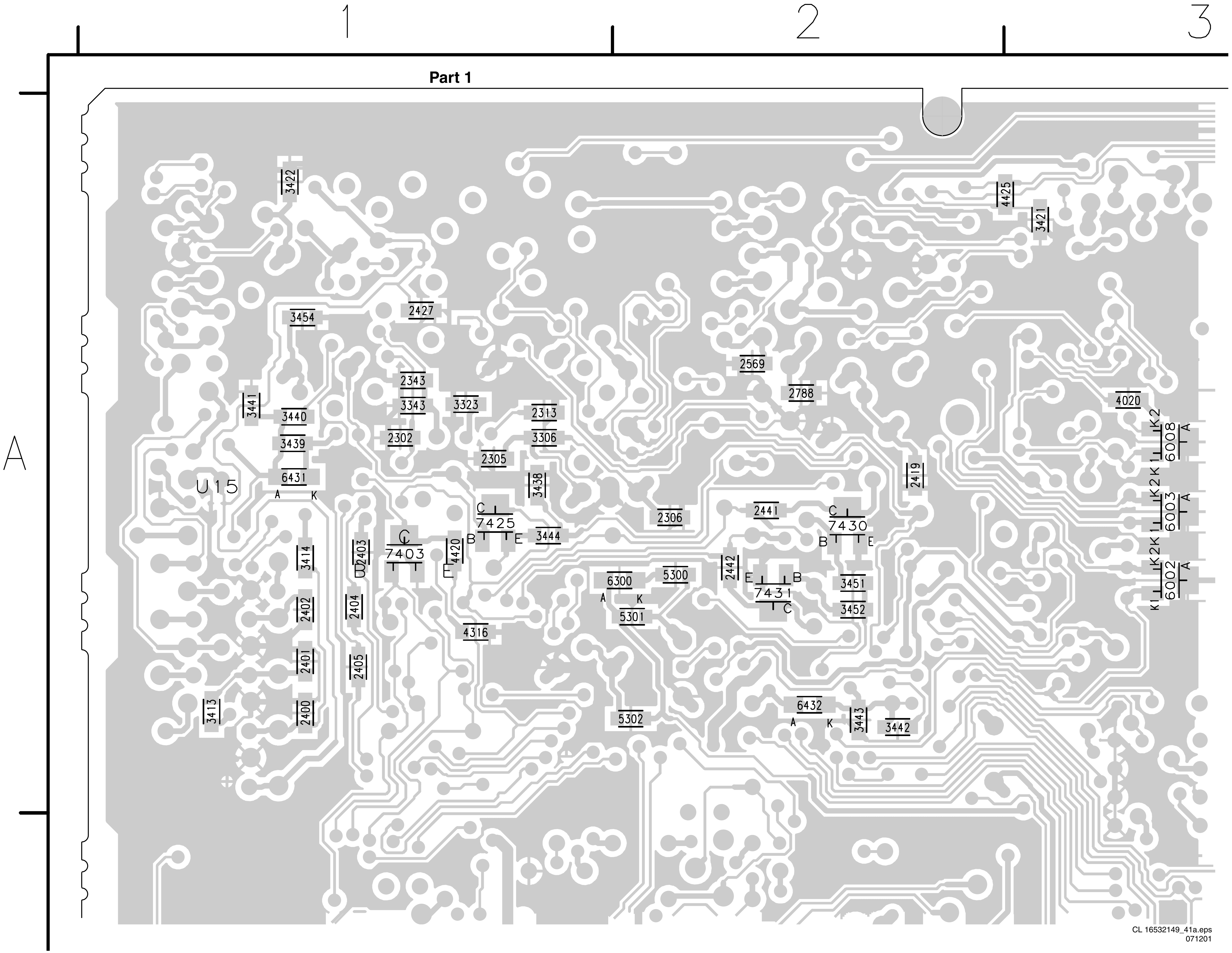

2251
2242
0370
2259
2252
2253
2254
2255
2256
2257
4217
4216
4215
3267
3251
3239
5560
5559
5562
2560
2557
2558
3558
2556
2550
2570
2561
2559
2563
7560
28
15
1
14
2222
3557
2562
2555
3552
3551
3228
3229
4230
6231
6229
3265
3264
3255
2226
6232
6230
2224
3254
2212
7201
3225
3266
3253
3252
3249
7204
2213
3248
3247
7203
E
B
C
3274
3273
3271
6242
6240
2241
6243
6241
2240
3270
21B
1B
2B
20B
2A
20A
21A
1A
1202
6207
6208
6209
6206
6205
6202
6203
6201
6200
6228
6244
6219
6226
6227
6225
6218
6239
6222
6223
6224
6221
6220
6216
6217
6215
6214
K
A
E
F
4
5
CL 16532149_40f.eps
061201

Layout Small Signal Board (Bottom Overview)



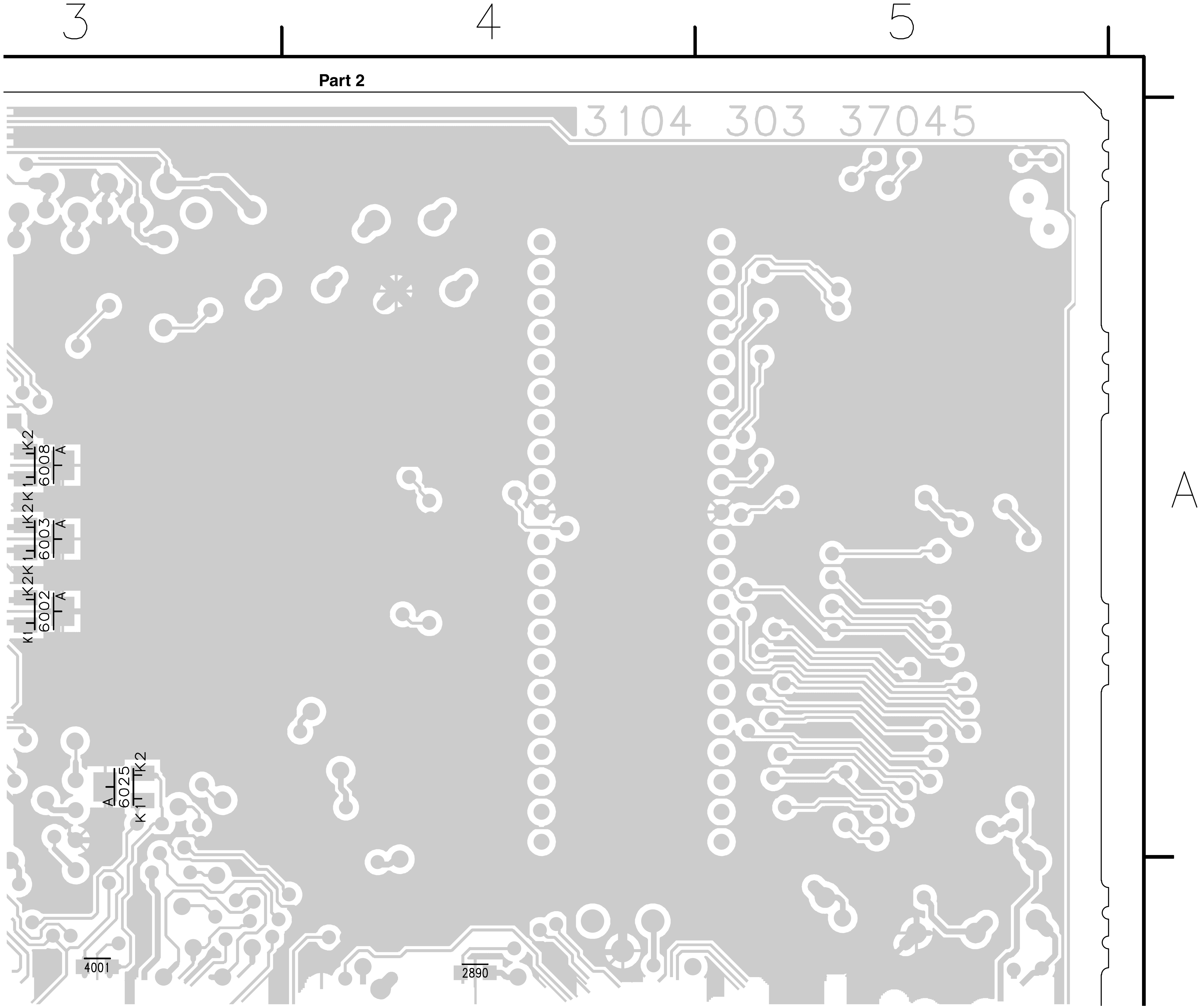
2102	E5
2104	E5
2105	E5
2106	D5
2107	D5
2108	D5
2111	E4
2112	C5
2118	D4
2120	E5
2122	D4
2125	F5
2127	E5
2202	F2
2203	F2
2206	F2
2209	F3
2210	F3
2215	F1
2216	F1
2217	F1
2218	E4
2219	F1
2220	F1
2221	F2
2228	F4
2229	F4
2235	F4
2302	A1
2305	A1
2306	A2
2313	A1
2343	A1
2400	A1
2401	A1
2402	A1
2403	A1
2404	A1
2405	A1
2419	A2
2427	A1
2441	A2
2442	A2
2532	E4
2534	D4
2535	E3
2536	E4
2537	E3
2551	E1
2552	E1
2553	E1
2554	E1
2564	E1
2567	E1
2569	A2
2752	C4
2754	C5
2755	C4
2756	C4
2757	C4
2758	C4
2759	C4
2760	C4
2763	C4
2764	C4
2767	C4
2768	C4
2773	C4
2774	B4
2779	C4
2781	C4
2785	B4
2786	B4
2787	D5
2788	A2
2793	B3
2797	C3
2798	C3
2799	C3
2800	C3
2809	C4
2812	C5
2814	B5
2821	B5
2823	B5
2825	B5
2828	B5
2830	C5
2835	C5
2836	C5
2843	D2
2861	C2
2862	B2
2863	C2
2865	B2
2867	C2
2868	B2
2880	C2
2890	B4
2891	B4
2892	C4
2898	B4
3103	F5
3104	F5
3106	D5
3118	E4
3119	E5
3133	E5
3134	D5
3138	E5
3139	E5
3152	E4
3153	D4
3200	F2
3201	F2
3202	F2
3203	F2
3205	F3
3206	F3
3207	F3
3208	F2
3209	F3
3210	F3
3211	F3
3212	F2
3213	F3
3215	F3
3216	F3
3218	F3
3219	F3
3220	F2
3221	F1
3222	F1
3223	F1
3224	F1
3227	F2
3230	F1
3231	F2
3232	F1
3233	F4
3235	F1
3236	F1
3240	F1
3241	F1
3242	F1
3243	F1
3244	F1
3245	F1
3246	F1
3250	F2
3256	F3
3257	F4
3258	F4
3272	F4
3280	F4
3306	A1
3323	A1
3343	A1
3413	A1
3414	A1
3421	A3
3422	A1
3438	A1
3439	A1
3440	A1
3441	A1
3442	A2
3443	A2
3444	A1
3451	A2
3452	A2
3454	A1
3532	D4
3553	E1
3554	E1
3556	E1
3567	E4
3568	E4
3571	E4
3590	E1
3769	C3
3770	C3
3771	C3
3772	C3
3773	C3
3776	C3
3777	C3
3778	C3
3779	C3
3783	C4
3796	B3
3797	B3
3817	C5
3823	B3
3824	B3
3826	F4
3830	B3
3831	B3
3832	B4
3862	B2
3863	C2
3864	B2
3865	C2
3868	B2
3869	C2
3870	B2
3871	C2
3872	B2
3883	D2
3884	D2
3885	D2
3886	D2
3887	D2
3888	D2
3892	B3
3893	B3
4001	B3
4002	B3
4020	A3
4103	D4
4104	E5
4107	E5
4110	E5
4113	D4
4114	D5
4203	D2
4228	E4
4229	F2
4235	F2
4316	A1
4400	D1
4401	D1
4402	D1
4403	D1
4411	D2
4412	D2
4420	A1
4425	A3
4614	C2
4616	C2
4618	C2
4700	B4
4701	B4
4732	C2
4733	B2
4734	C2
4735	B2
4736	C2
4745	E1
4803	E4
4804	E4
4805	C4
4806	C4
4809	E1
4812	C3
4813	C3
5102	E5
5105	E5
5300	A2
5301	A2
5302	A2
5553	E1
5754	C5
5755	C5
5757	B2
5758	B5
6002	A3
6003	A3
6008	A3
6025	A3
6101	E5
6105	D5
6234	F3
6235	F3
6236	F4
6237	F4
6260	F4
6261	F4
6300	A2
6431	A1
6432	A2
6750	D1
6754	B4
7101	D5
7112	D4
7403	A1
7425	A1
7430	A2
7431	A2
7555	E1
7561	E4
7701	D2
7752	C3
7758	C3
7775	B3
7776	C2

Layout Small Signal Board (Bottom View Part 1)


1
2
3
A
Part 1
3422
4425
3421
3454
2427
2569
2788
4020
3441
2343
3343
3323
2313
3440
3306
3439
2302
2305
6431
A
K
U15
3438
2419
K2
6008
A
K1
K2
6003
A
K1
K2
6002
A
K1
C
7425
B
E
3444
2306
2441
C
7430
B
E
3414
2403
C
7403
E
4420
2442
E
B
7431
C
6300
A
K
5300
3451
3452
5301
2402
2404
4316
2401
2405
3413
2400
5302
6432
A
K
3443
3442

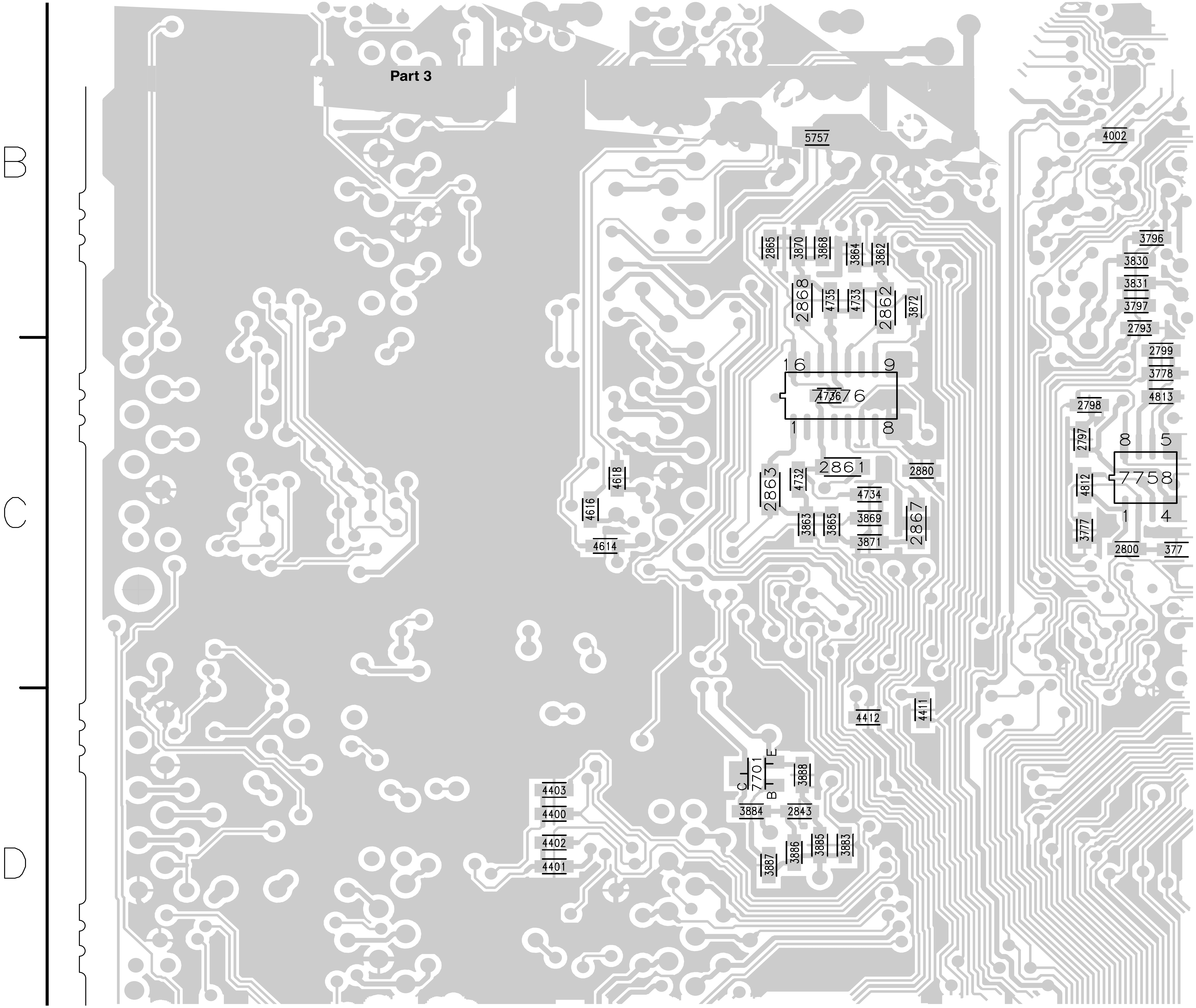
CL 16532149_41a.eps
071201

Layout Small Signal Board (Bottom View Part 2)


3
4
5
A
Part 2
3104 303 37045
6008
6003
6002
6025
K1
K2
A
4001
2890

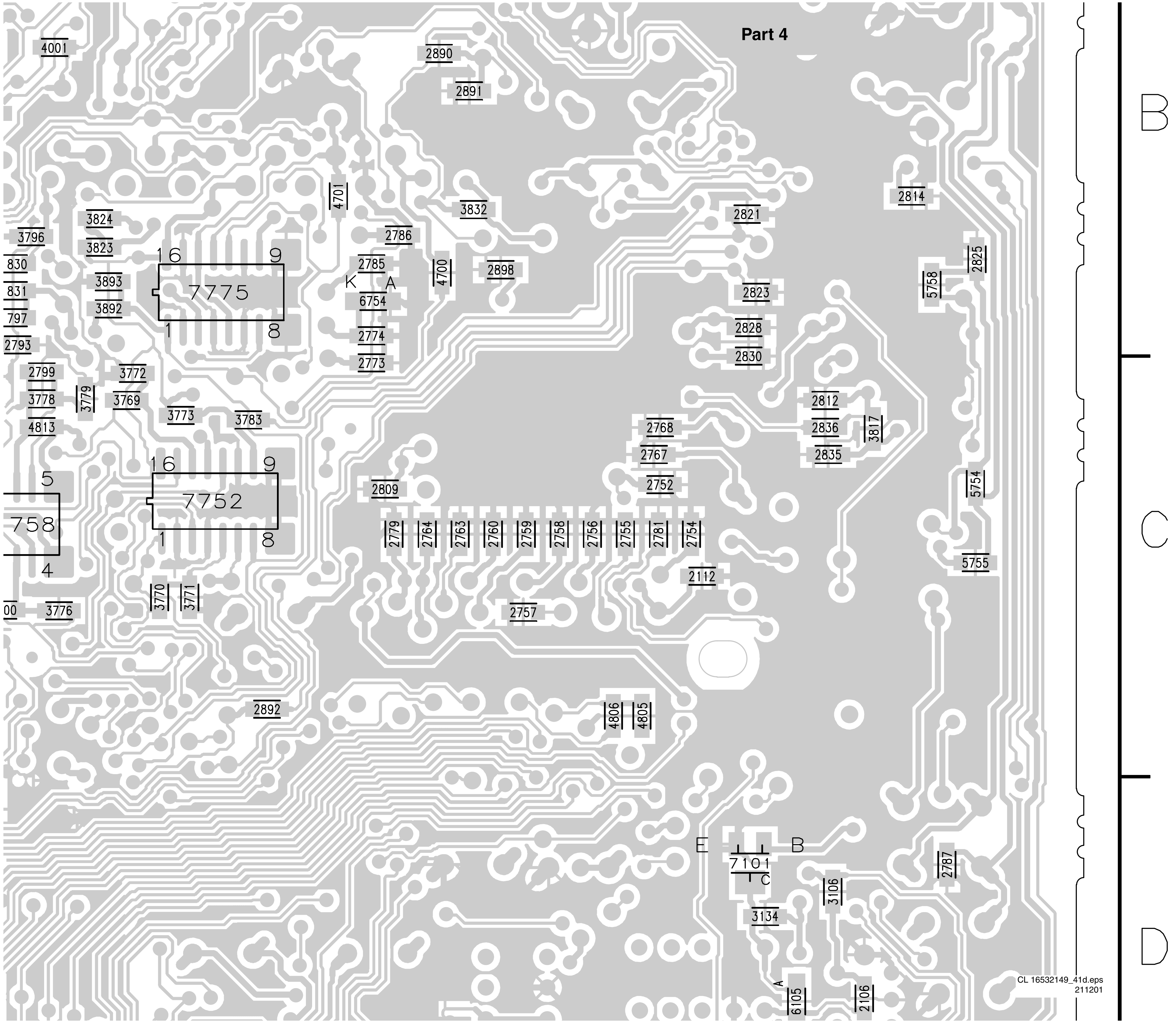
CL 16532149_41b.eps
071201

Layout Small Signal Board (Bottom View Part 3)

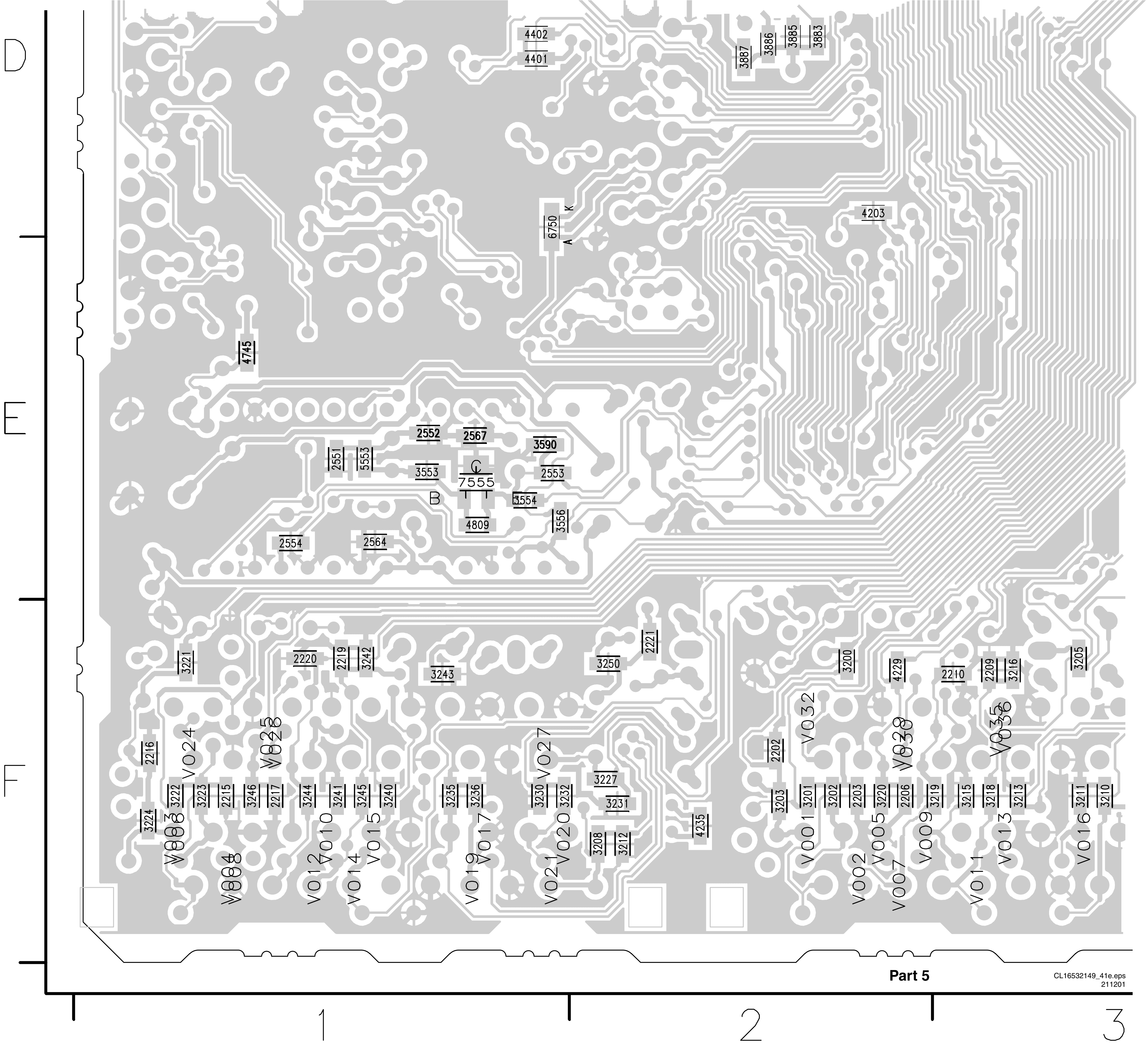

Part 3
B
C
D
5757
4002
2865
3870
3868
3864
3862
3796
3830
3831
3797
2793
2799
3778
4813
2868
4735
4733
2862
3872
16
9
4736
7676
1
8
2798
2797
8
5
7758
4812
1
4
3777
2800
377
4618
4616
4614
2863
4732
2861
2880
4734
3863
3865
3869
3871
2867
4412
4411
E
C
7701
B
3888
3884
2843
3887
3886
3885
3883
4403
4400
4402
4401

CL 16532149_41c.eps
201201

Layout Small Signal Board (Bottom View Part 4)


Part 4
4001
2890
2891
4701
3832
2786
2821
2814
3824
3796
3823
16
9
7775
1
8
2785
K
A
4700
2898
2825
5758
830
3893
831
3892
6754
2823
797
2774
2828
2793
2773
2830
2799
3772
3779
3778
3769
3773
3783
4813
2812
2768
2836
3817
2767
2835
5
16
9
7752
1
8
2809
2752
5754
758
2779
2764
2763
2760
2759
2758
2756
2755
2781
2754
4
5755
2112
3770
3771
00
3776
2757
2892
4806
4805
E
B
7101
C
2787
3106
3134
A
6105
2106
CL 16532149_41d.eps
211201
B
C
D

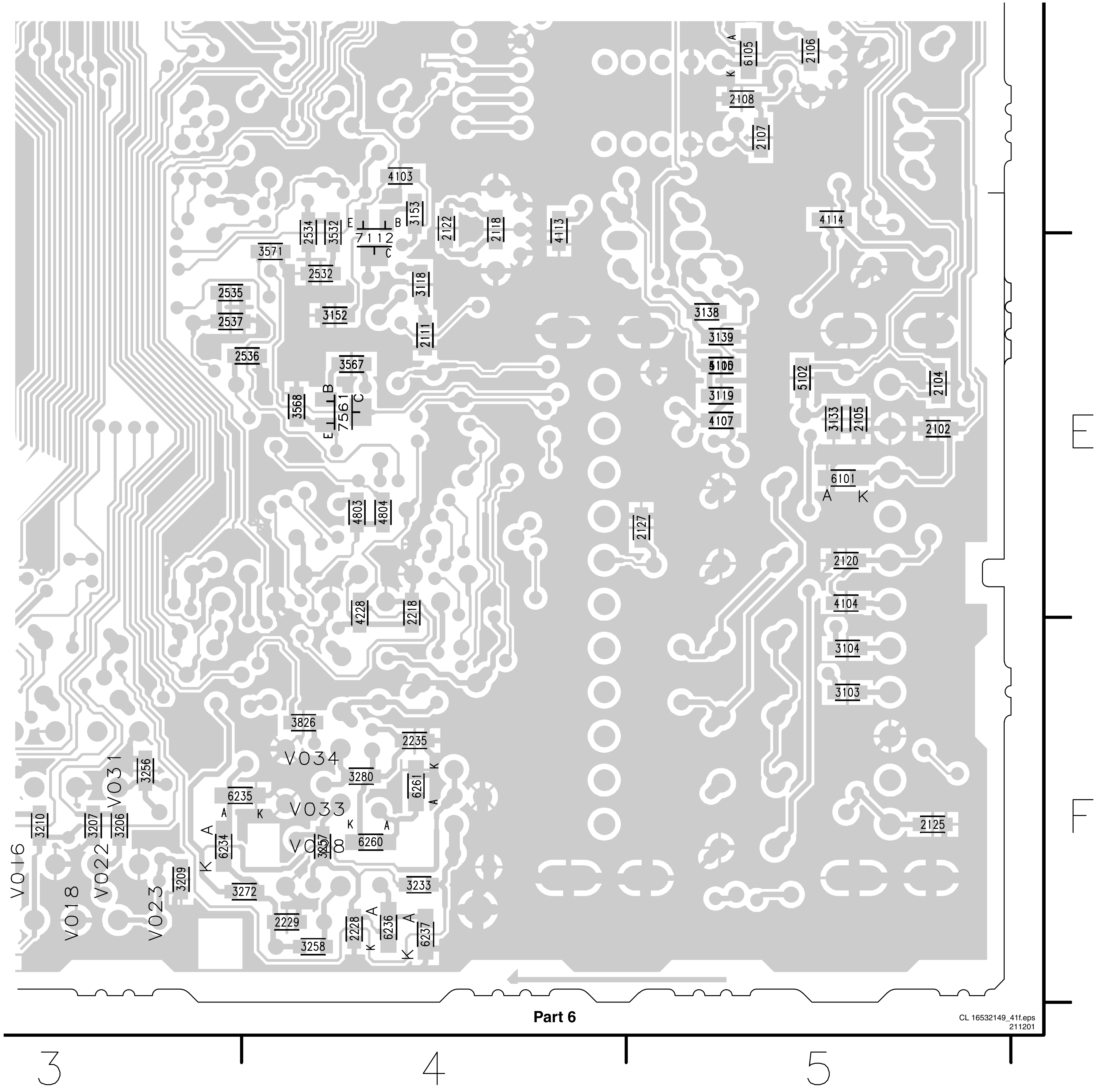
Layout Small Signal Board (Bottom View Part 5)


D
E
F
1
2
3
4402
4401
3887
3886
3885
3883
4203
6750
K
A
4745
2552
2567
3590
2551
5553
3553
C
7555
B
2553
3554
3556
4809
2554
2564
2221
3221
2220
2219
3242
3243
3250
3200
4229
2210
2209
3216
3205
2216
V024
V025
V026
V027
V032
V028
V030
V035
V036
2202
3222
3223
2215
3246
2217
3244
3241
3245
3240
3235
3236
3230
3232
3227
3231
3203
3201
3202
2203
3220
2206
3219
3215
3218
3213
3211
3210
3224
V003
V006
V004
V008
V012
V010
V014
V015
V019
V017
V021
V020
3208
3212
4235
V001
V002
V005
V007
V009
V011
V013
V016

Part 5

CL16532149_41e.eps
211201

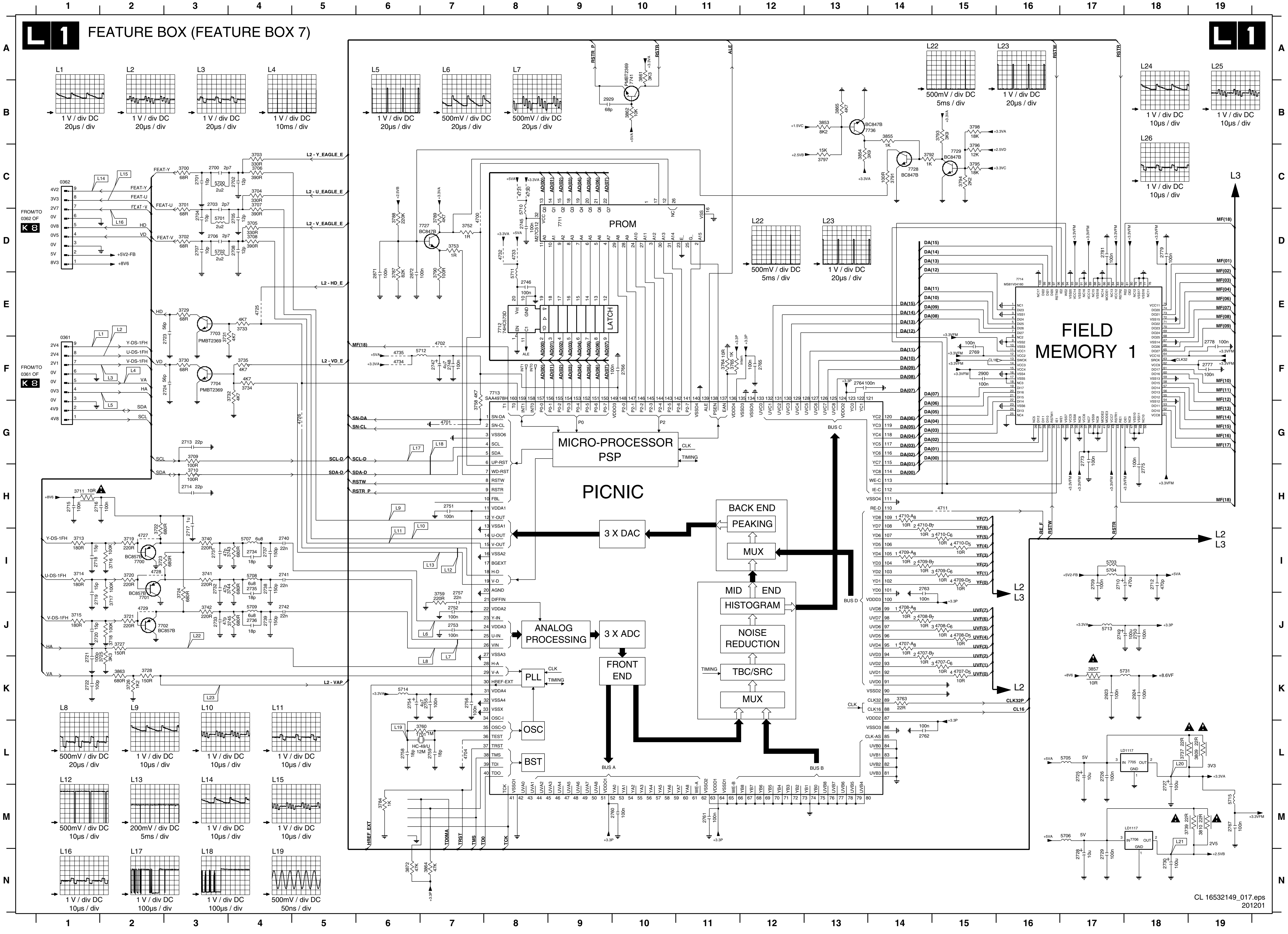
Layout Small Signal Board (Bottom View Part 6)


6105
2106
2108
2107
4103
3153
2534
3532
7112
2122
2118
4113
4114
3571
2532
3118
2535
2537
3152
2111
3138
3139
5106
3119
4107
2536
3567
5102
2104
3568
7561
3133
2105
2102
6101
4803
4804
2127
2120
4228
2218
4104
3104
3103
3826
2235
V034
3280
6261
3256
V031
6235
V033
6260
3210
3207
3206
6234
V028
3857
V016
V022
3209
3272
3233
2125
V018
V023
2229
2228
6236
6237
3258
E
F
3
4
5

Part 6

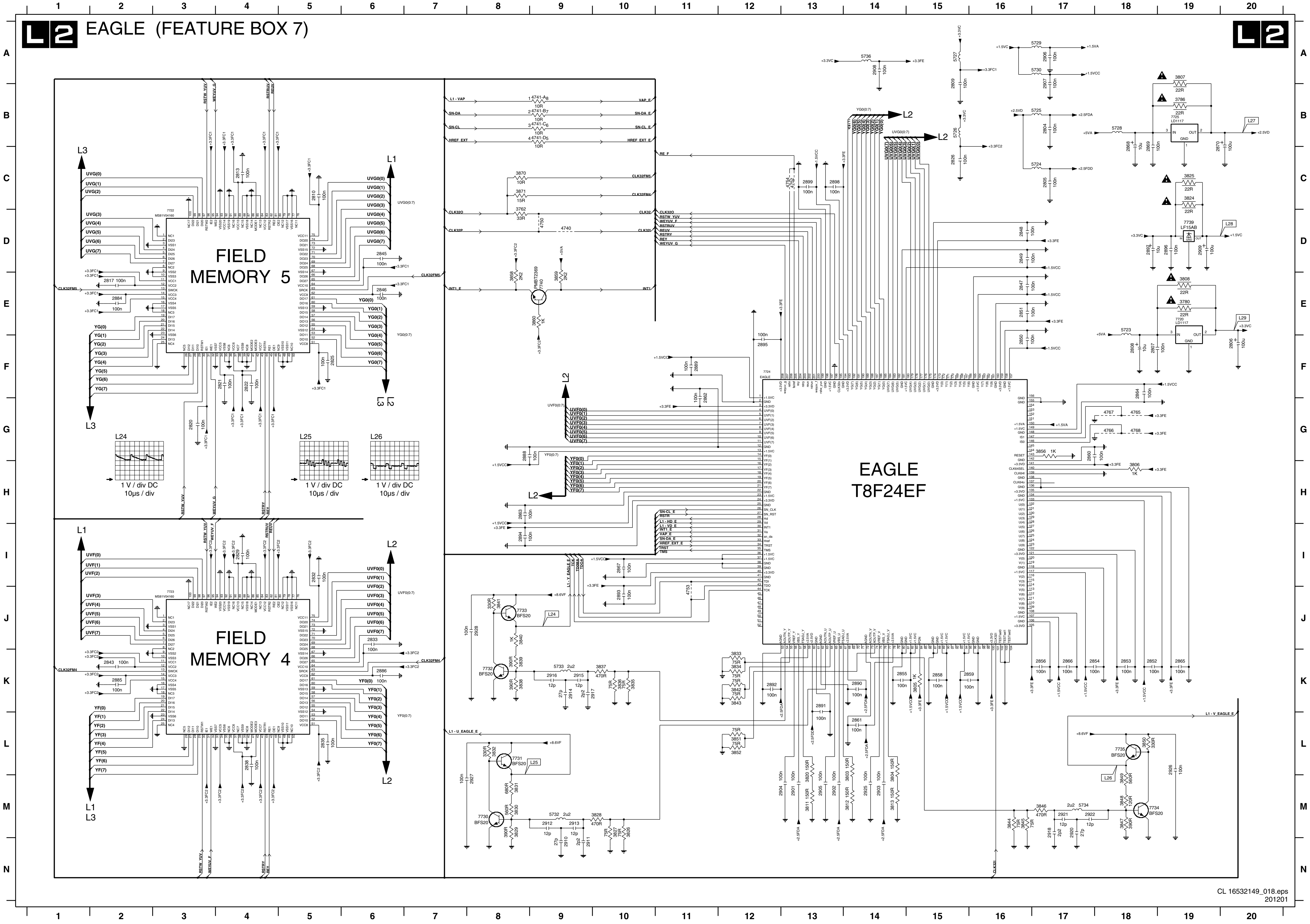
CL 16532149_41f.eps
211201

Feature Box 7 Panel: Feature Box


L1
FEATURE BOX (FEATURE BOX 7)
L1 1 V / div DC 20µs / div
L2 1 V / div DC 20µs / div
L3 1 V / div DC 20µs / div
L4 1 V / div DC 10ms / div
L5 1 V / div DC 20µs / div
L6 500mV / div DC 20µs / div
L7 500mV / div DC 20µs / div
L22 500mV / div DC 5ms / div
L23 1 V / div DC 20µs / div
L24 1 V / div DC 10µs / div
L25 1 V / div DC 10µs / div
L26 1 V / div DC 10µs / div
L8 500mV / div DC 20µs / div
L9 1 V / div DC 10µs / div
L10 1 V / div DC 10µs / div
L11 1 V / div DC 10µs / div
L12 500mV / div DC 10µs / div
L13 200mV / div DC 5ms / div
L14 1 V / div DC 10µs / div
L15 1 V / div DC 10µs / div
L16 1 V / div DC 10µs / div
L17 1 V / div DC 100µs / div
L18 1 V / div DC 100µs / div
L19 500mV / div DC 50ns / div
FROM/TO 0362 OF K8
FROM/TO 0361 OF K8
PROM
LATCH
MICRO-PROCESSOR PSP
PICNIC
FIELD MEMORY 1
3 X DAC
BACK END
PEAKING
MUX
MID END
HISTOGRAM
NOISE REDUCTION
TBC/SRC
MUX
ANALOG PROCESSING
3 X ADC
FRONT END
PLL
OSC
BST
BUS A
BUS B
BUS C
BUS D
L2 - Y_EAGLE_E
L2 - U_EAGLE_E
L2 - V_EAGLE_E
L2 - HD_E
L2 - VD_E
L2 - VAP
L2
L3
CL 16532149_017.eps
201201

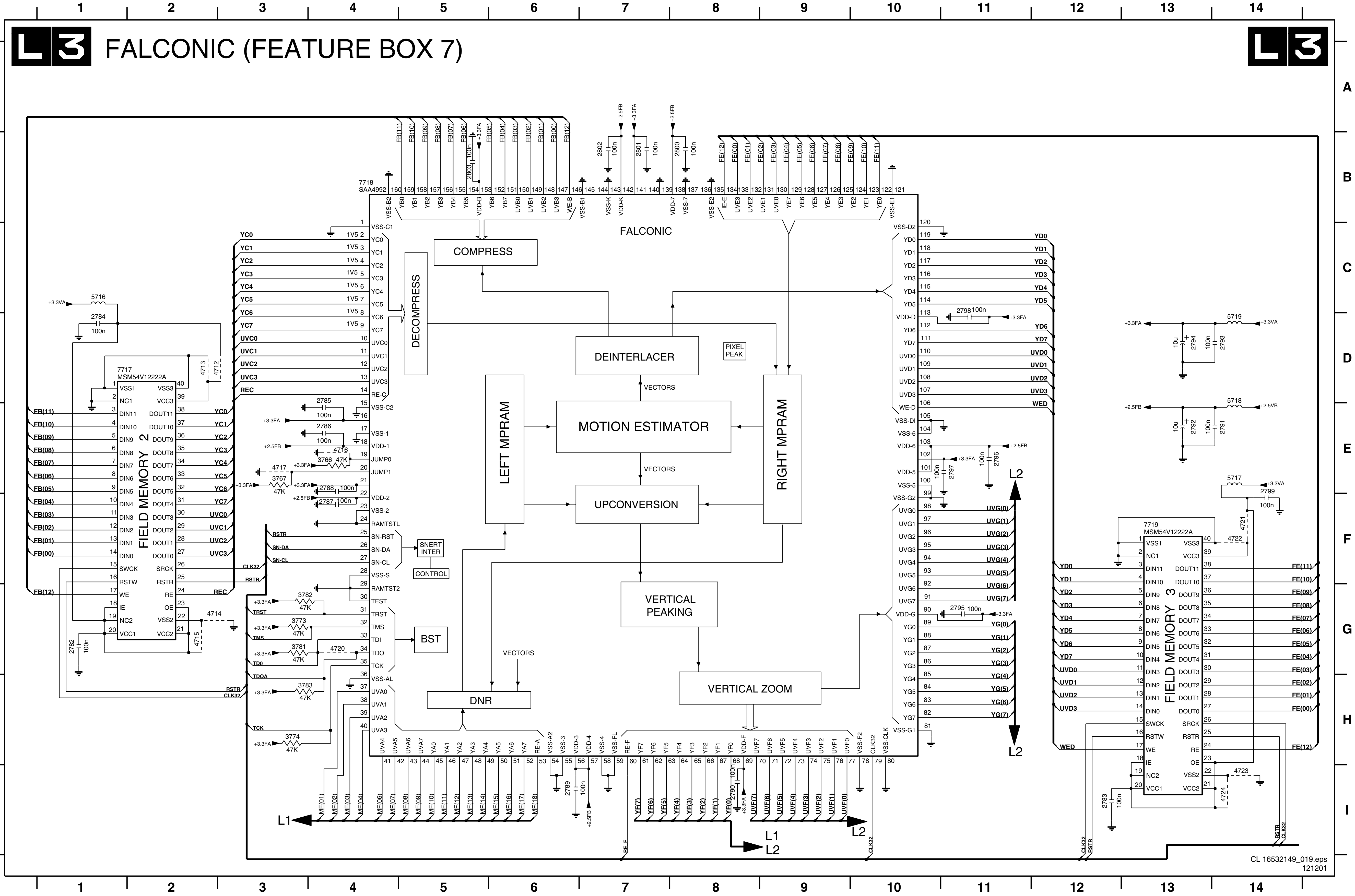
0361	E1
0362	C1
1701	L7
2700	C3
2701	C3
2702	C4
2703	C3
2704	D3
2705	D4
2706	D3
2707	D3
2708	D4
2709	I17
2710	I17
2712	I18
2713	G3
2714	H3
2715	H1
2716	H1
2717	I3
2718	I1
2719	J1
2720	J1
2721	K1
2722	K1
2723	F3
2724	F3
2725	L17
2726	L17
2727	M18
2728	N17
2729	N17
2730	N18
2731	I3
2732	I3
2733	J3
2734	I4
2735	I4
2736	J4
2737	I4
2738	I4
2739	J4
2740	I4
2741	I4
2742	J4
2745	D8
2746	E8
2747	F7
2748	F7
2749	J17
2750	J18
2751	H7
2752	J7
2753	J7
2754	K6
2755	K7
2756	K7
2757	I7
2758	L6
2759	L7
2760	M10
2761	M11
2762	L14
2763	I14
2764	F13
2765	F12
2766	F10
2767	M19
2769	F15
2773	G17
2775	H18
2777	F19
2778	F19
2779	D18
2781	D17
2871	E6
2872	E6
2900	F15
2923	K17
2924	K18
2929	B9
3700	C3
3701	C3
3702	D3
3703	C4
3704	C4
3705	D4
3706	C4
3707	C4
3708	D4
3709	G3
3710	H3
3711	H1
3713	I1
3714	I1
3715	J1
3716	I2
3717	J2
3718	J2
3719	I2
3720	I2
3721	J2
3722	I2
3723	I2
3724	J3
3725	K2
3726	K2
3727	J2
3728	K2
3729	E3
3730	F3
3731	F3
3732	F4
3733	E4
3734	F4
3735	F4
3737	L18
3739	M18
3740	I3
3741	I3
3742	J3
3743	I4
3744	I4
3745	J4
3752	D7
3753	D7
3758	G7
3759	I7
3760	L7
3763	K14
3764	F11
3765	F11
3784	M6
3787	E6
3788	D6
3789	D7
3790	E7
3791	C14
3792	C14
3793	B15
3794	C15
3795	C15
3796	C15
3797	C13
3798	B15
3809	L19
3810	M19
3853	B13
3854	C13
3855	B14
3857	K17
3861	A10
3862	B10
3863	K2
3864	N7
3865	B13
3872	N6
3999	M2
4700	D7
4701	G7
4702	F7
4704	L7
4707-A	J14
4707-B	J14
4707-C	K15
4707-D	K15
4708-A	J14
4708-B	J14
4708-C	J15
4708-D	J15
4709-A	I14
4709-B	I14
4709-C	I15
4709-D	I15
4710-A	H14
4710-B	H14
4710-C	I15
4710-D	I15
4711	H15
4725	E4
4726	G5
4727	I2
4728	I2
4729	J2
4730	C8
4731	C8
4732	D8
4733	D8
4734	F6
4735	F6
5700	C3
5701	D3
5702	D3
5703	I17
5704	I17
5705	L17
5706	M17
5707	I4
5708	I4
5709	J4
5710	D8
5711	E8
5712	F7
5713	J17
5714	K6
5715	M19
5731	K18
7700	I2
7701	J2
7702	J2
7703	E3
7704	F3
7705	L18
7706	M18
7711	D9
7712	E8
7713	F8
7714	E16
7727	D6
7728	C14
7729	C15
7736	B13
7741	A10

Feature Box 7 Panel: Eagle


L2
EAGLE (FEATURE BOX 7)
FIELD MEMORY 5
FIELD MEMORY 4
EAGLE T8F24EF
L1
L2
L3
L24
L25
L26
1 V / div DC
10µs / div
7722
7723
7724
7720 LD1117
7725 LD1117
7739 LF15AB
7730 BFS20
7731 BFS20
7732 BFS20
7733 BFS20
7734 BFS20
7735 BFS20
7740 PMBT2369
L1 - U_EAGLE_E
L1 - V_EAGLE_E
CLK32FM5
CLK32FM4
CL 16532149_018.eps
201201

2804	B17
2805	C17
2806	F20
2807	F18
2808	F18
2809	A15
2810	C5
2813	C4
2817	E2
2820	G3
2821	F4
2822	F4
2825	F5
2826	C15
2829	I4
2832	I5
2833	J6
2835	L5
2838	L4
2843	K2
2845	D6
2846	E6
2847	E16
2848	D16
2849	D16
2850	F16
2851	E16
2852	K18
2853	K18
2854	K17
2855	K14
2856	K17
2858	K15
2859	K15
2860	G17
2861	L14
2862	F11
2863	H8
2864	F18
2865	K19
2866	K17
2867	I10
2868	B18
2869	B18
2870	B19
2884	E2
2885	K2
2886	K6
2888	G8
2889	F11
2890	K14
2891	K13
2892	K12
2893	J10
2894	I8
2895	F12
2896	D19
2897	D18
2898	C13
2899	C13
2901	M13
2902	M13
2903	M14
2904	M13
2905	M13
2906	A17
2907	A17
2908	A14
2909	D19
2910	N9
2911	N9
2912	M9
2913	M9
2914	K9
2915	K9
2916	K9
2917	K9
2918	M17
2920	M17
2921	M17
2922	M17
2925	M14
2926	L19
2927	M8
2928	J8
3762	D8
3780	E19
3786	B19
3803	M14
3804	M14
3805	K15
3806	H18
3807	A19
3808	E19
3811	M13
3812	M14
3813	M14
3820	M13
3824	C19
3825	C19
3826	M10
3827	M10
3828	M10
3829	M8
3830	M8
3831	M8
3832	L8
3833	K12
3834	K12
3835	K10
3836	K10
3837	K10
3838	K8
3839	K8
3840	J8
3841	J8
3842	K12
3843	K12
3844	M16
3845	M16
3846	M17
3847	M18
3848	M18
3849	M18
3850	L18
3851	L12
3852	L12
3856	G17
3858	E8
3859	E9
3860	E9
3870	C8
3871	C8
4740	D9
4741-A	B9
4741-B	B9
4741-C	B9
4741-D	B9
4750	D9
4752	C13
4753	J11
4754	C13
4765	G18
4766	G18
4767	G18
4768	G18
5723	E18
5724	C17
5725	B17
5726	B15
5727	A15
5728	B18
5729	A17
5730	A17
5732	M9
5733	K9
5734	M17
5736	A14
7720	E19
7722	D3
7723	J3
7724	F12
7725	B19
7730	M8
7731	L8
7732	K8
7733	J8
7734	M18
7735	L18
7739	D19
7740	E9

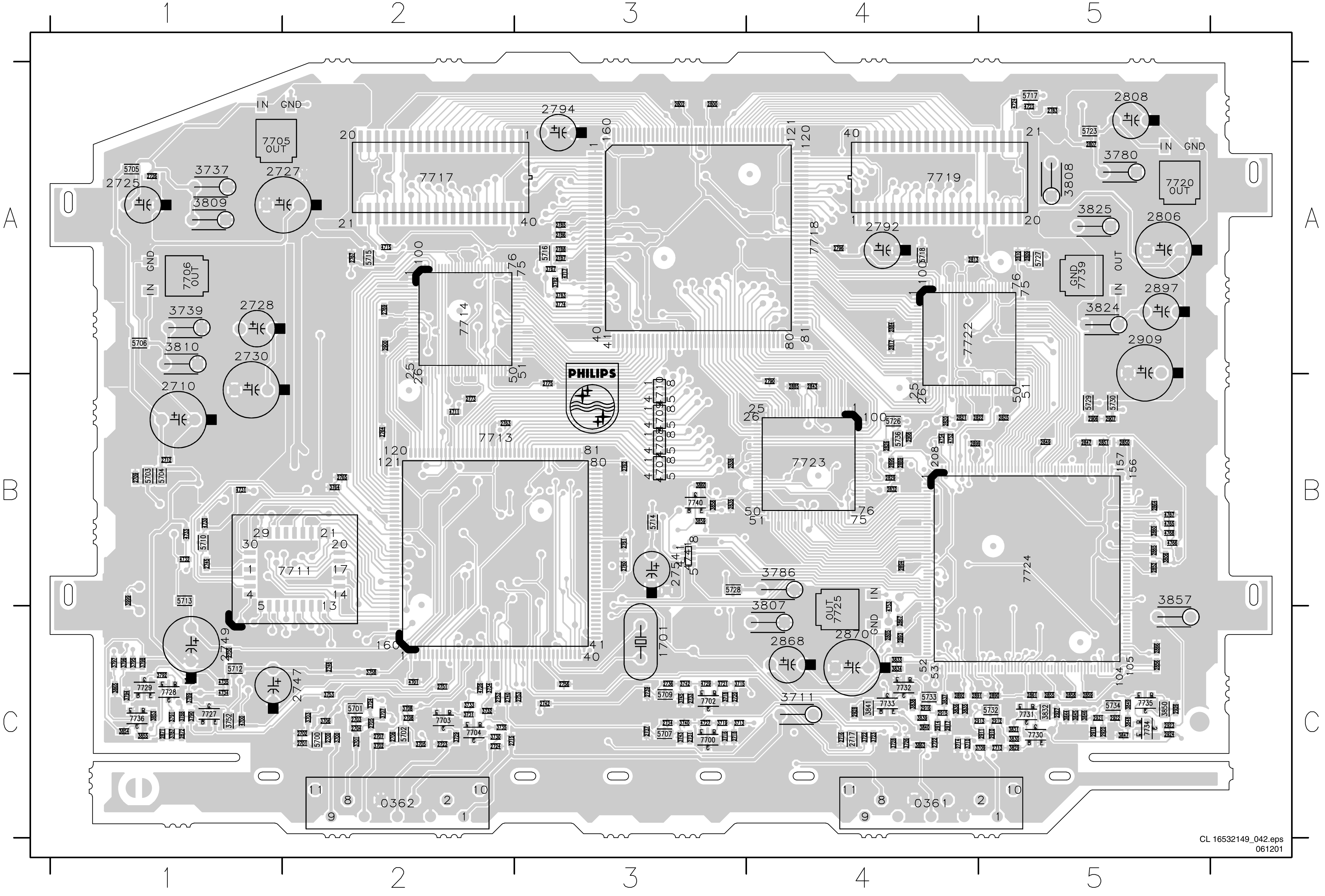
Feature Box 7 Panel: Falconic


L3
FALCONIC (FEATURE BOX 7)
1 2 3 4 5 6 7 8 9 10 11 12 13 14
A B C D E F G H I
7718
SAA4992
FALCONIC
COMPRESS
DECOMPRESS
DEINTERLACER
PIXEL PEAK
VECTORS
MOTION ESTIMATOR
LEFT MPRAM
RIGHT MPRAM
UPCONVERSION
VERTICAL PEAKING
VERTICAL ZOOM
DNR
BST
SNERT INTER
CONTROL
7717
MSM54V12222A
FIELD MEMORY 2
7719
MSM54V12222A
FIELD MEMORY 3
5716
2784
100n
2785
2786
2787
2788
2789
2790
2791
2792
2793
2794
2795
2796
2797
2798
2799
2800
2801
2802
2803
2782
2783
3766
3767
3773
3774
3781
3782
3783
47K
4712
4713
4714
4715
4716
4717
4720
4721
4722
4723
4724
5717
5718
5719
10u
+3.3VA
+3.3FA
+2.5FB
+2.5VB
YC0 YC1 YC2 YC3 YC4 YC5 YC6 YC7
UVC0 UVC1 UVC2 UVC3
REC
FB(00) FB(01) FB(02) FB(03) FB(04) FB(05) FB(06) FB(07) FB(08) FB(09) FB(10) FB(11) FB(12)
FE(00) FE(01) FE(02) FE(03) FE(04) FE(05) FE(06) FE(07) FE(08) FE(09) FE(10) FE(11) FE(12)
YD0 YD1 YD2 YD3 YD4 YD5 YD6 YD7
UVD0 UVD1 UVD2 UVD3
WED
UVG(0) UVG(1) UVG(2) UVG(3) UVG(4) UVG(5) UVG(6) UVG(7)
YG(0) YG(1) YG(2) YG(3) YG(4) YG(5) YG(6) YG(7)
MF(01) MF(02) MF(03) MF(04) MF(06) MF(07) MF(08) MF(09) MF(10) MF(11) MF(12) MF(13) MF(14) MF(15) MF(16) MF(17) MF(18)
YF(0) YF(1) YF(2) YF(3) YF(4) YF(5) YF(6) YF(7)
UVF(0) UVF(1) UVF(2) UVF(3) UVF(4) UVF(5) UVF(6) UVF(7)
RSTR
CLK32
SN-DA
SN-CL
TRST
TMS
TD0
TDOA
TCK
RE_F
L1
L2
CL 16532149_019.eps
121201

2782	G1
2783	I12
2784	D1
2785	D4
2786	E4
2787	F4
2788	E4
2789	I6
2790	I8
2791	E14
2792	E13
2793	D14
2794	D13
2795	G11
2796	E11
2797	E11
2798	C11
2799	E14
2800	B8
2801	B7
2802	B7
2803	B5
3766	E4
3767	E3
3773	G3
3774	H3
3781	G3
3782	G3
3783	H3
4712	D3
4713	D2
4714	G2
4715	G2
4716	E4
4717	E3
4720	G4
4721	F14
4722	F14
4723	I14
4724	I14
5716	C1
5717	E14
5718	D14
5719	D14
7717	D1
7718	B4
7719	F13

Layout Feature Box 7 Panel (Top View)

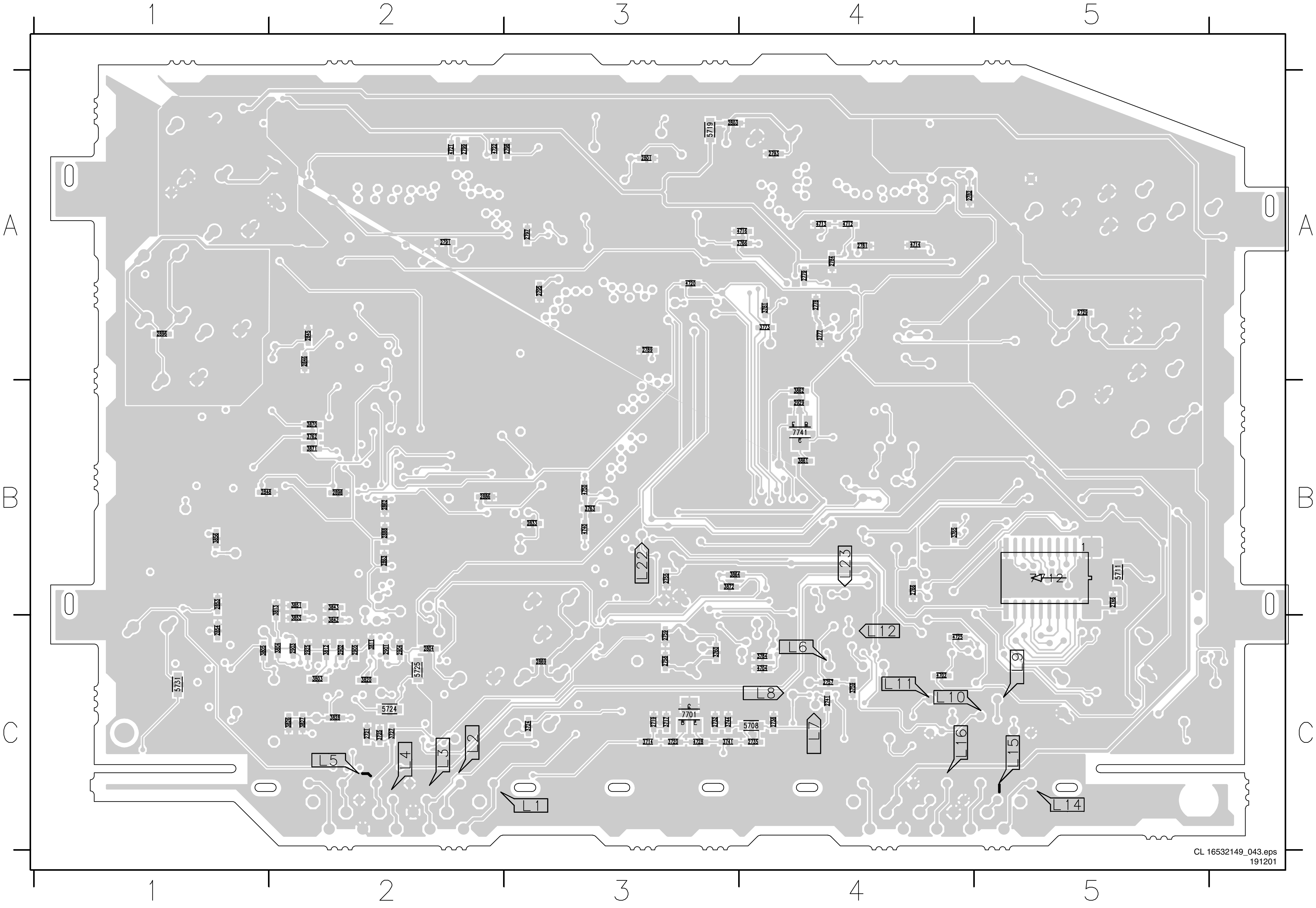
0361	C4
0362	C2
1701	C3
2700	C2
2701	C2
2702	C2
2703	C2
2704	C2
2705	C2
2706	C2
2707	C2
2708	C2
2709	B1
2710	B1
2712	B1
2713	C5
2714	C4
2715	C2
2716	C4
2717	C4
2718	C3
2720	C3
2722	C4
2723	C2
2724	C2
2725	A1
2726	A1
2727	A2
2728	A1
2730	B1
2731	C3
2733	C3
2734	C3
2736	C3
2737	C3
2739	C3
2740	C2
2742	C3
2745	B1
2747	C2
2748	C2
2749	C1
2750	C1
2751	C2
2752	C2
2753	C3
2754	B3
2756	C3
2760	B3
2761	B3
2762	B3
2763	B2
2764	B2
2765	B2
2767	A2
2769	A2
2773	B2
2775	B3
2783	A5
2785	A3
2786	A3
2787	A3
2788	A3
2790	B4
2792	A4
2794	A3
2796	A4
2800	A3
2802	A3
2805	C4
2806	A5
2807	A5
2808	A5
2809	A5
2810	A5
2813	A4
2817	A4
2820	B4
2821	B4
2822	B4
2825	B5
2826	B4
2829	B4
2832	B4
2835	B3
2838	B3
2843	B4
2847	B5
2849	B5
2850	B5
2851	B5
2852	B5
2855	C5
2856	C5
2858	C5
2859	C5
2860	B5
2861	C5
2864	B5
2865	B5
2866	C5
2867	C4
2868	C4
2870	C4
2871	C1
2872	C1
2884	A4
2885	B4
2889	B4
2890	C5
2891	C4
2892	C4
2893	C4
2894	B4
2895	B4
2897	A5
2899	B4
2900	A2
2906	B5
2907	B5
2908	B4
2909	A5
2910	C5
2911	C5
2912	C5
2913	C5
2914	C4
2915	C4
2916	C4
2917	C4
2918	C5
2920	C5
2921	C5
2922	C5
2923	C5
2924	C5
2926	C5
2927	C5
2928	C4
3700	C2
3701	C2
3702	C2
3703	C2
3704	C2
3705	C2
3706	C2
3707	C2
3708	C2
3709	C5
3710	C4
3711	C4
3713	C3
3715	C3
3716	C3
3718	C3
3719	C3
3721	C3
3722	C4
3723	C4
3726	C4
3728	C4
3729	C2
3730	C2
3731	C2
3732	C2
3733	C2
3734	C2
3735	C2
3737	A1
3739	A1
3740	C3
3742	C3
3743	C3
3745	C3
3752	C1
3753	C2
3758	C2
3764	B2
3767	A3
3774	A3
3780	A5
3782	A3
3783	A3
3786	B4
3787	C1
3788	C1
3789	C1
3790	C1
3791	C1
3792	C1
3793	C1
3794	C1
3795	C1
3796	C1
3797	C1
3798	C1
3806	B5
3807	B4
3808	A5
3809	A1
3810	A1
3824	A5
3825	A5
3829	C5
3830	C5
3831	C5
3832	C5
3833	C4
3834	C4
3835	C4
3836	C4
3837	C4
3838	C4
3839	C4
3840	C4
3841	C4
3844	C5
3845	C5
3846	C5
3847	C5
3848	C5
3849	C5
3850	C5
3853	C1
3854	C1
3855	C1
3857	B5
3858	B3
3859	B3
3860	B3
3863	C4
3865	C1
3999	B1
4700	C1
4701	C2
4707	B3
4708	B3
4709	B3
4710	B3
4711	B2
4715	A2
4717	A3
4723	A5
4724	
4726	
4727	
4729	
4730	
4731	
4732	
4733	
4734	
4735	
4741	
4752	
4753	
4754	
4765	
4766	
4767	
4768	
5700	
5701	
5702	
5703	
5704	
5705	
5706	
5707	
5709	
5710	
5712	
5713	
5714	
5715	
5716	
5717	
5718	
5723	
5726	
5727	
5728	
5729	
5730	
5732	
5733	
5734	
5736	
7700	
7702	
7703	
7704	
7705	
7706	
7711	
7713	
7714	
7717	
7718	
7719	
7720	
7722	
7723	
7724	
7725	
7727	
7728	
7729	
7730	
7731	
7732	
7733	
7734	
7735	
7739	
7740	


1
2
3
4
5
A
B
C
IN GND
7705 OUT
2725
5705
3737
3809
2727
20
21
7717
40
2794
160
121
120
7718
40
21
7719
20
2808
3780
3808
IN GND
7720 OUT
3825
2806
2792
7706 OUT
GND IN
3739
2728
3810
2730
2710
5706
100
7714
76
75
25
26
50
51
41
80
81
1
7722
7739 GND OUT IN
2897
3824
2909
PHILIPS
7713
120
121
81
80
25
26
7723
100
50
51
76
75
208
157
156
7724
29
21
30
20
7711
17
14
13
4
5
5710
5713
2749
5712
2747
160
41
40
1701
3786
3807
5728
7725 OUT
GND
2868
2870
3711
3857
52
53
104
105
7729
7728
7727
7736
7703
7704
7702
7700
5709
5707
7733
7732
7731
7730
7735
7734
5701
5702
5700
5732
5733
5734
0362
11
8
2
10
9
1
0361
11
8
2
10
9
1

CL 16532149_042.eps
061201

Layout Feature Box 7 Panel (Bottom View)

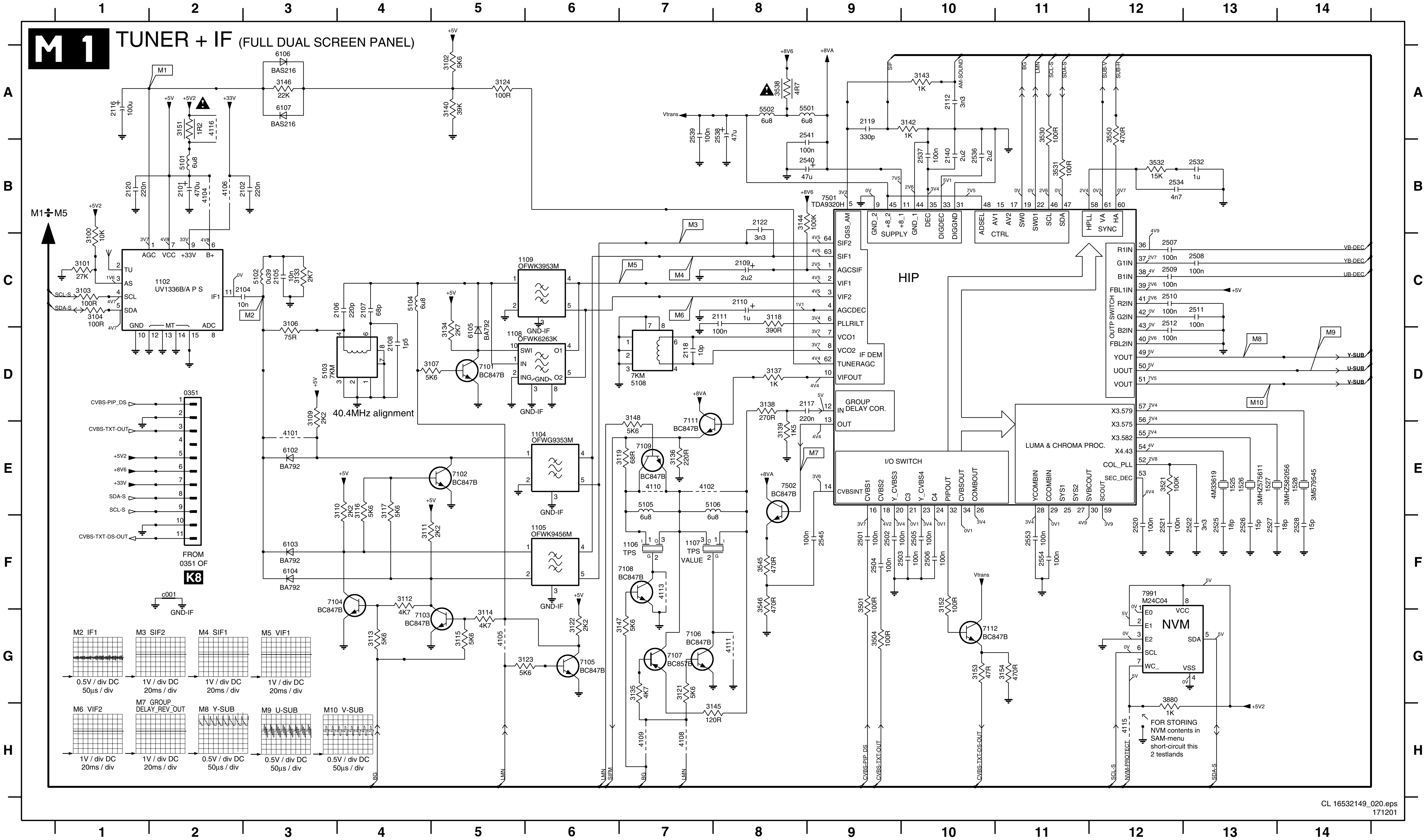
2719	C3
2721	C2
2729	A5
2732	C3
2735	C4
2738	C4
2741	C4
2746	B5
2755	B3
2757	C4
2758	C3
2759	C3
2766	B4
2777	A4
2778	A4
2779	A4
2781	A4
2782	A4
2784	A4
2789	A3
2791	A2
2793	A4
2795	A3
2797	A3
2798	A3
2799	A2
2801	A3
2803	A3
2804	C2
2833	B3
2845	A2
2846	A2
2848	B1
2853	B1
2854	C1
2862	B2
2863	B2
2869	C3
2886	B2
2888	B2
2896	A1
2898	B2
2901	C2
2902	C2
2903	C2
2904	C2
2905	C2
2925	C2
2929	B4
3714	C3
3717	C3
3720	C3
3724	C3
3725	C2
3727	C2
3741	C3
3744	C3
3759	C4
3760	C3
3762	B2
3763	B3
3765	B4
3766	A4
3773	A4
3781	A4
3784	C4
3803	C2
3804	C2
3805	C1
3811	C2
3812	C2
3813	B2
3820	C2
3826	C2
3827	C2
3828	C2
3842	C2
3843	B2
3851	B2
3852	C2
3856	B1
3861	B4
3862	B4
3864	B3
3870	B2
3871	B2
3872	B3
4702	C4
4704	C4
4712	A4
4713	A4
4714	A4
4716	A4
4720	A3
4721	A2
4722	A2
4725	C4
4728	C3
4740	B3
4750	B3
5708	C4
5711	B5
5719	A3
5724	C2
5725	C2
5731	C1
7701	C3
7712	C5
7741	B4


1
2
3
4
5
A
B
C
5719
7741
7712
5711
L22
L23
L12
L6
L11
L10
L9
L8
L7
7701
5708
5725
5724
5731
L5
L4
L3
L2
L1
L16
L15
L14

CL 16532149_043.eps
191201

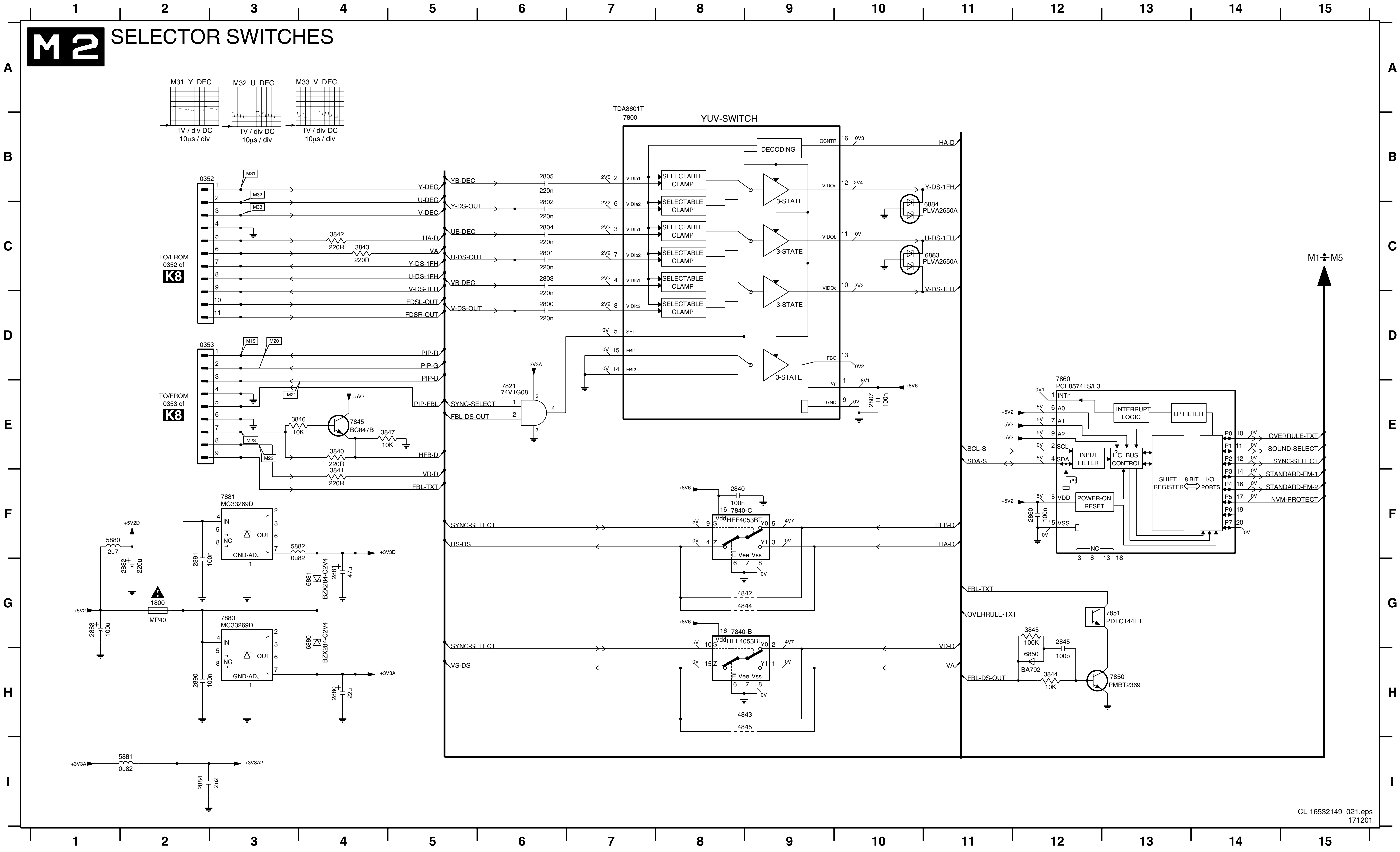
FDS Module: Tuner and IF (Full Dual Screen)

0351 D2	1109 C5	2104 C2	2111 C8	2122 B8	2506 F10	2520 F12	2532 B13	2541 A8	3103 C1	3112 F4	3119 E7	3135 G7	3143 A10	3152 F10	3531 B11	4101 E3	4110 E7	5103 D3	6102 E3	7102 E5	7109 E7
1102 C2	1525 E13	2105 C3	2112 A10	2140 B10	2507 C12	2521 F12	2534 B12	2545 F9	3104 C1	3113 G4	3121 G7	3136 E7	3144 B8	3153 G10	3532 B12	4102 E7	4111 G8	5104 C4	6103 F3	7103 G4	7111 E7
1104 E6	1526 E13	2106 C4	2116 A1	2501 F9	2508 C13	2522 F13	2536 B10	2553 F11	3106 C3	3114 G5	3122 G6	3137 D8	3145 H8	3154 G11	3538 A8	4104 B2	4113 F7	5105 E7	6104 F3	7104 F4	7112 G10
1105 F6	1527 E13	2107 C4	2117 D8	2502 F9	2509 C12	2525 F13	2537 B10	2554 F11	3107 D5	3115 G5	3123 G6	3138 D8	3146 A3	3501 F9	3545 F8	4105 G5	4115 H12	5106 E7	6105 D5	7105 G6	7501 B9
1106 F7	1528 E14	2108 D4	2118 D7	2503 F10	2510 C12	2526 F13	2538 A8	3100 C1	3109 D3	3116 E4	3124 A5	3139 E8	3147 G7	3504 G9	3546 F8	4106 B2	4116 A2	5108 D7	6106 A3	7106 G7	7502 E8
1107 F7	2101 B2	2109 C8	2119 A9	2504 F9	2511 C13	2527 F13	2539 A7	3101 C1	3110 E4	3117 E4	3133 C3	3140 A4	3148 D7	3521 E12	3550 A12	4108 H7	5101 B2	5501 A8	6107 A3	7107 G7	7991 F12
1108 D5	2102 B3	2110 C8	2120 B1	2505 F10	2512 C12	2528 F14	2540 B8	3102 A4	3111 F4	3118 C8	3134 D5	3142 A10	3151 A2	3530 A11	3880 G12	4109 H7	5102 C3	5502 A8	7101 D5	7108 F6	c001 F1

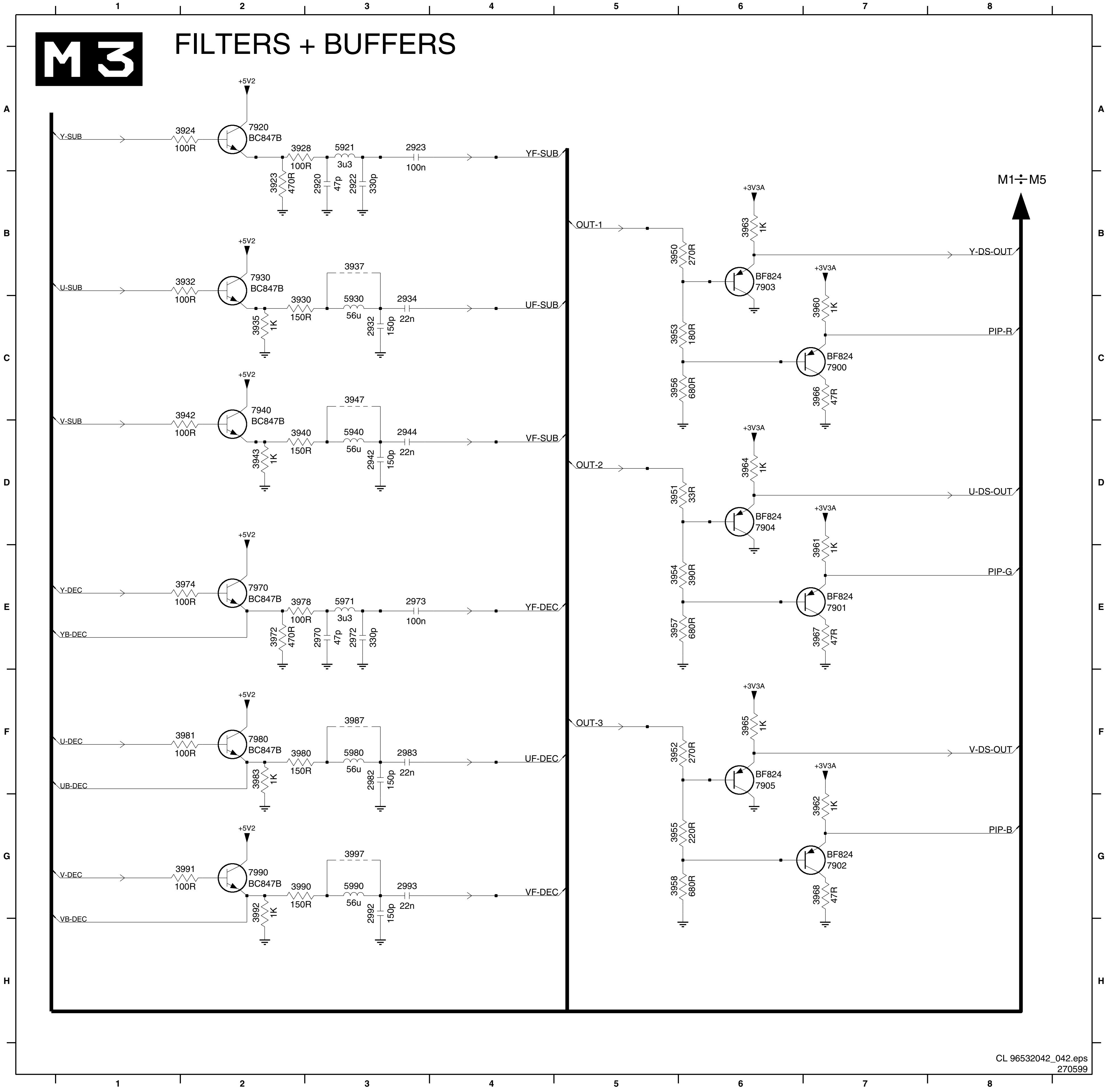

M 1
TUNER + IF (FULL DUAL SCREEN PANEL)
M1 ÷ M5
1102
UV1336B/A P S
AGC VCC +33V B+
TU AS SCL SDA IF1
GND MT ADC
1109 OFWK3953M
1108 OFWK6263K
SWI IN ING GND O1 O2
GND-IF
1104 OFWG9353M
1105 OFWK9456M
7KM 5108
40.4MHz alignment
0351
CVBS-PIP_DS
CVBS-TXT-OUT
+5V2
+8V6
+33V
SDA-S
SCL-S
CVBS-TXT-DS-OUT
FROM 0351 OF
K8
c001
7501 TDA9320H
HIP
QSS_AM
GND_2 +8_2 +8_1 GND_1 DEC DIGDEC DIGGND
SUPPLY
ADSEL AV1 AV2 SW0 SW01 SCL SDA
CTRL
HPLL VA HA
SYNC
SIF2 SIF1 AGCSIF VIF1 VIF2 AGCDEC PLLRILT VCO1 VCO2 TUNERAGC VIFOUT
IF DEM
GROUP DELAY COR.
IN OUT
R1IN G1IN B1IN FBL1IN R2IN G2IN B2IN FBL2IN YOUT UOUT VOUT
OUTP SWITCH
LUMA & CHROMA PROC.
X3.579 X3.575 X3.582 X4.43 COL_PLL SEC_DEC
I/O SWITCH
CVBSINT CVBS1 CVBS2 Y_CVBS3 C3 Y_CVBS4 C4 PIPOUT CVBSOUT COMBOUT
YCOMBIN CCOMBIN SYS1 SYS2 SVBCOUT SCOUT
YB-DEC
YB-DEC
UB-DEC
Y-SUB
U-SUB
V-SUB
7991 M24C04
NVM
E0 E1 E2 SCL WC_ VCC SDA VSS
FOR STORING NVM contents in SAM-menu short-circuit this 2 testlands
NVM-PROTECT
M2 IF1
0.5V / div DC 50µs / div
M3 SIF2
1V / div DC 20ms / div
M4 SIF1
1V / div DC 20ms / div
M5 VIF1
1V / div DC 20ms / div
M6 VIF2
1V / div DC 20ms / div
M7 GROUP DELAY_REV_OUT
1V / div DC 20ms / div
M8 Y-SUB
0.5V / div DC 50µs / div
M9 U-SUB
0.5V / div DC 50µs / div
M10 V-SUB
0.5V / div DC 50µs / div
CL 16532149_020.eps
171201

FDS Module: Selector Switches

0352 B3
0353 D3
1800 G2
2800 D6
2801 C6
2802 C6
2803 C6
2804 C6
2805 B6
2807 E10
2840 F8
2845 G12
2860 F12
2880 H4
2881 G4
2882 G2
2883 G1
2884 I2
2890 H2
2891 G2
3840 E4
3841 F4
3842 C4
3843 C4
3844 H12
3845 G12
3846 E3
3847 E4
3999 B2
4842 G8
4843 H8
4844 G8
4845 H8
5880 F1
5881 I2
5882 F3
6850 H12
6880 G4
6881 G4
6883 C11
6884 C11
7800 B7
7821 E6
7840-B G8
7840-C F8
7845 E4
7850 H13
7851 G13
7860 E12
7880 G3
7881 F3


M2
SELECTOR SWITCHES
M31 Y_DEC
M32 U_DEC
M33 V_DEC
1V / div DC
10µs / div
0352
TO/FROM
0352 of
K8
M31
M32
M33
Y-DEC
U-DEC
V-DEC
3842
220R
3843
220R
HA-D
VA
Y-DS-1FH
U-DS-1FH
V-DS-1FH
FDSL-OUT
FDSR-OUT
0353
TO/FROM
0353 of
K8
M19
M20
M21
M22
M23
PIP-R
PIP-G
PIP-B
PIP-FBL
+5V2
3846
10K
7845
BC847B
3847
10K
3840
220R
3841
220R
HFB-D
VD-D
FBL-TXT
YB-DEC
Y-DS-OUT
UB-DEC
U-DS-OUT
VB-DEC
V-DS-OUT
2805
2802
2804
2801
2803
2800
220n
SYNC-SELECT
FBL-DS-OUT
+3V3A
7821
74V1G08
TDA8601T
7800
YUV-SWITCH
DECODING
SELECTABLE CLAMP
3-STATE
VIDIa1
VIDIa2
VIDIb1
VIDIb2
VIDIc1
VIDIc2
SEL
FBI1
FBI2
IOCNTR
VIDOa
VIDOb
VIDOc
FBO
Vp
GND
2V5
2V2
0V
0V3
2V4
0V2
8V1
+8V6
2807
100n
6884
PLVA2650A
6883
PLVA2650A
HA-D
Y-DS-1FH
U-DS-1FH
V-DS-1FH
M1 ÷ M5
7860
PCF8574TS/F3
INTn
A0
A1
A2
SCL
SDA
VDD
VSS
0V1
5V
INTERRUPT LOGIC
LP FILTER
INPUT FILTER
I²C BUS CONTROL
SHIFT REGISTER
8 BIT
I/O PORTS
POWER-ON RESET
NC
P0
P1
P2
P3
P4
P5
P6
P7
OVERRULE-TXT
SOUND-SELECT
SYNC-SELECT
STANDARD-FM-1
STANDARD-FM-2
NVM-PROTECT
SCL-S
SDA-S
2860
100n
+5V2
7881
MC33269D
IN
NC
OUT
GND-ADJ
5880
2u7
+5V2D
2882
220u
2891
100n
5882
0u82
+3V3D
6881
BZX284-C2V4
2881
47u
+5V2
1800
MP40
2883
100u
7880
MC33269D
6880
BZX284-C2V4
2890
100n
+3V3A
2880
22u
5881
0u82
+3V3A
+3V3A2
2884
2u2
2840
100n
7840-C
HEF4053BT
Vdd
Vee Vss
+8V6
4V7
SYNC-SELECT
HS-DS
HFB-D
HA-D
4842
4844
7840-B
HEF4053BT
SYNC-SELECT
VS-DS
VD-D
VA
4843
4845
FBL-TXT
OVERRULE-TXT
FBL-DS-OUT
7851
PDTC144ET
3845
100K
6850
BA792
2845
100p
3844
10K
7850
PMBT2369
CL 16532149_021.eps
171201

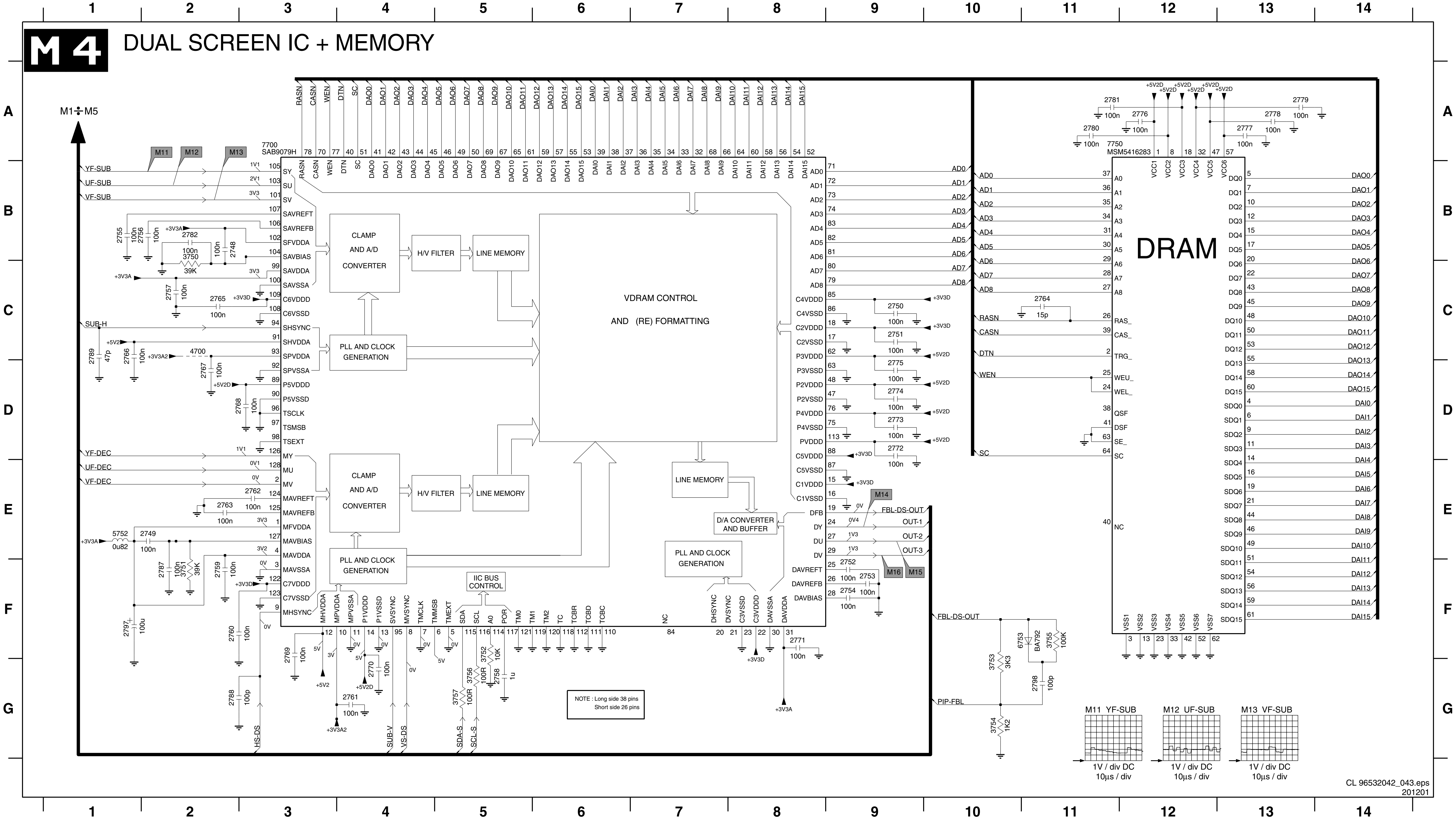
FDS Module: Filters and Buffers


M3
FILTERS + BUFFERS
Y-SUB
U-SUB
V-SUB
Y-DEC
YB-DEC
U-DEC
UB-DEC
V-DEC
VB-DEC
+5V2
3924 100R
7920 BC847B
3928 100R
5921 3u3
2923 100n
3923 470R
2920 47p
2922 330p
YF-SUB
3932 100R
7930 BC847B
3930 150R
3937
5930 56u
2934 22n
3935 1K
2932 150p
UF-SUB
3942 100R
7940 BC847B
3940 150R
3947
5940 56u
2944 22n
3943 1K
2942 150p
VF-SUB
3974 100R
7970 BC847B
3978 100R
5971 3u3
2973 100n
3972 470R
2970 47p
2972 330p
YF-DEC
3981 100R
7980 BC847B
3980 150R
3987
5980 56u
2983 22n
3983 1K
2982 150p
UF-DEC
3991 100R
7990 BC847B
3990 150R
3997
5990 56u
2993 22n
3992 1K
2992 150p
VF-DEC
OUT-1
OUT-2
OUT-3
+3V3A
3963 1K
3950 270R
BF824 7903
3953 180R
3956 680R
3960 1K
BF824 7900
3966 47R
Y-DS-OUT
PIP-R
3964 1K
3951 33R
BF824 7904
3954 390R
3957 680R
3961 1K
BF824 7901
3967 47R
U-DS-OUT
PIP-G
3965 1K
3952 270R
BF824 7905
3955 220R
3958 680R
3962 1K
BF824 7902
3968 47R
V-DS-OUT
PIP-B
M1÷M5
1
2
3
4
5
6
7
8
A
B
C
D
E
F
G
H
CL 96532042_042.eps
270599

2920	B3
2922	B3
2923	A3
2932	C3
2934	C3
2942	D3
2944	D3
2970	E3
2972	E3
2973	E3
2982	F3
2983	F3
2992	G3
2993	G3
3923	B2
3924	A2
3928	A2
3930	C2
3932	B2
3935	C2
3937	B3
3940	D2
3942	C2
3943	D2
3947	C3
3950	B5
3951	D5
3952	F5
3953	C5
3954	E5
3955	G5
3956	C5
3957	E5
3958	G5
3960	C7
3961	E7
3962	G7
3963	B6
3964	D6
3965	F6
3966	C7
3967	E7
3968	G7
3972	E2
3974	E2
3978	E2
3980	F2
3981	F2
3983	F2
3987	F3
3990	G2
3991	G2
3992	G2
3997	G3
5921	A3
5930	C3
5940	D3
5971	E3
5980	F3
5990	G3
7900	C7
7901	E7
7902	G7
7903	B6
7904	D6
7905	F6
7920	A2
7930	B2
7940	C2
7970	E2
7980	F2
7990	G2

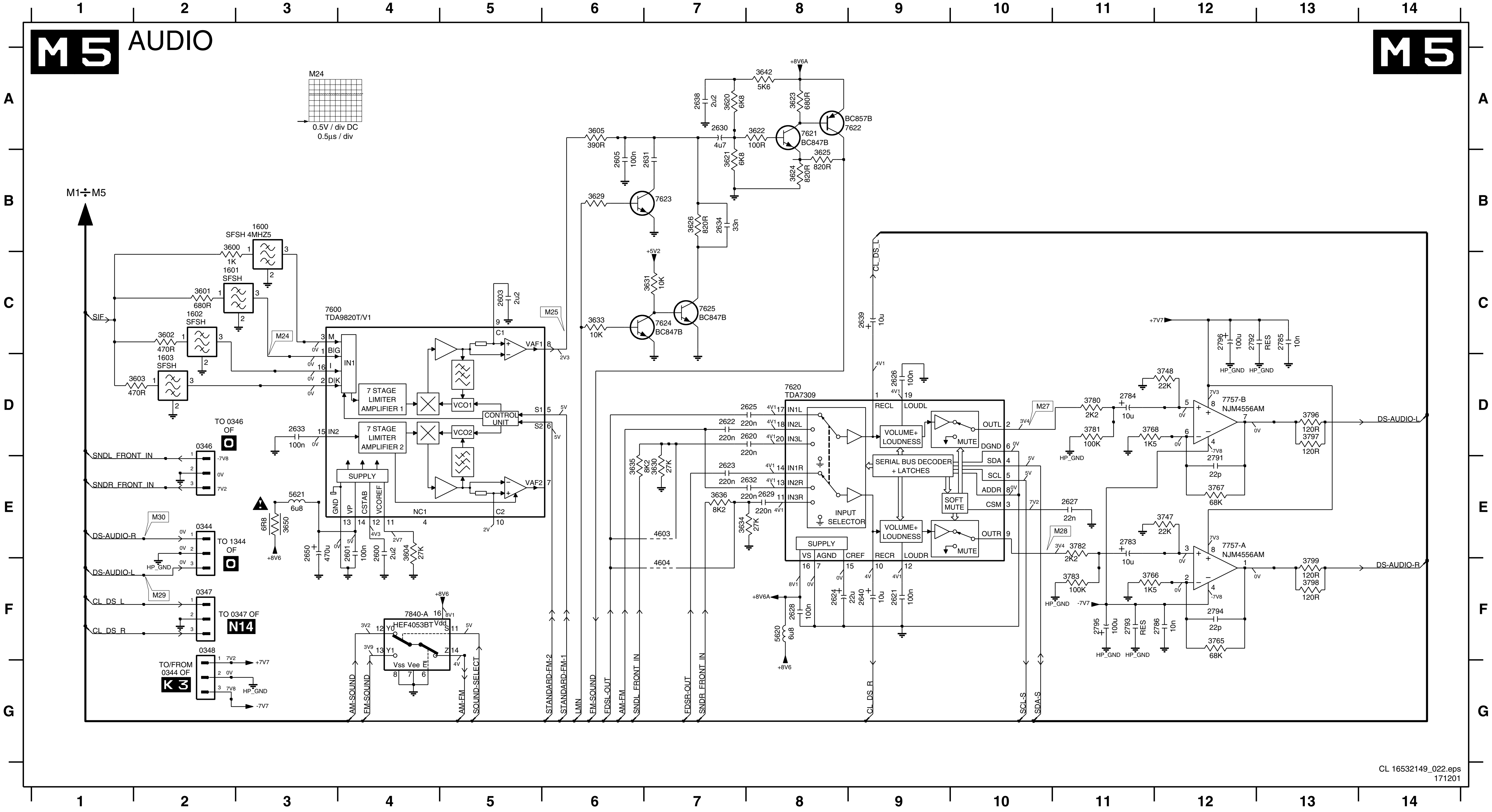
FDS Module: Dual Screen IC and Memory

2748	B2
2749	E2
2750	C9
2751	C9
2752	F9
2753	F9
2754	F9
2755	B1
2756	B2
2757	C2
2758	G5
2759	F2
2760	F2
2761	G4
2762	E3
2763	E2
2764	C11
2765	C2
2766	C1
2767	D2
2768	D3
2769	F3
2770	G4
2771	F8
2772	D9
2773	D9
2774	D9
2775	D9
2776	A12
2777	A13
2778	A13
2779	A13
2780	A11
2781	A11
2782	B2
2787	F2
2788	G2
2789	C1
2797	F1
2798	G11
3750	B2
3751	F2
3752	F5
3753	G10
3754	G10
3755	F11
3756	G5
3757	G5
4700	C2
5752	E1
6753	F11
7700	A3
7750	A11



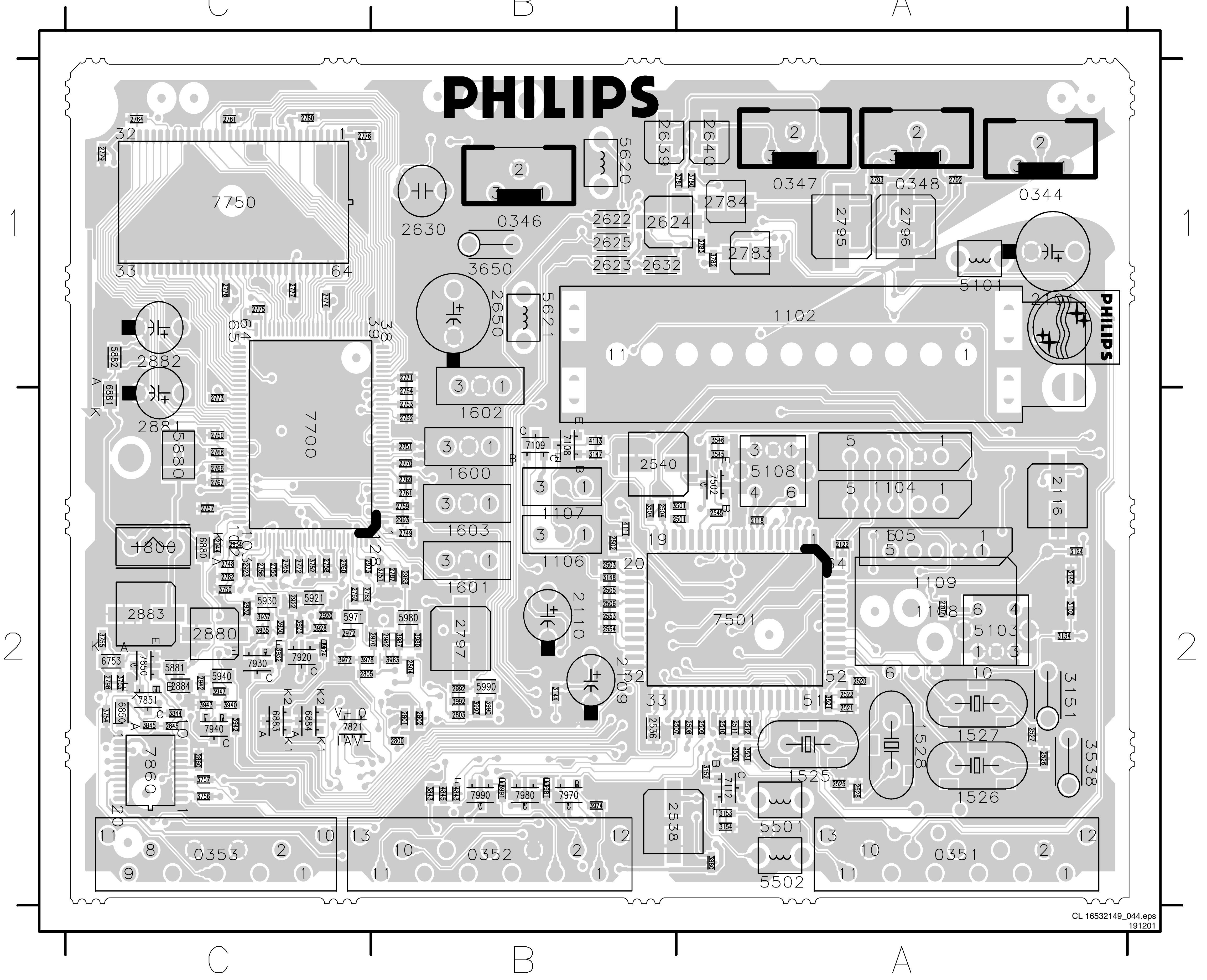
M 4
DUAL SCREEN IC + MEMORY
M1 ÷ M5
M11
M12
M13
YF-SUB
UF-SUB
VF-SUB
SUB-H
YF-DEC
UF-DEC
VF-DEC
7700
SAB9079H
CLAMP AND A/D CONVERTER
H/V FILTER
LINE MEMORY
PLL AND CLOCK GENERATION
VDRAM CONTROL AND (RE) FORMATTING
D/A CONVERTER AND BUFFER
IIC BUS CONTROL
7750
MSM5416283
DRAM
FBL-DS-OUT
OUT-1
OUT-2
OUT-3
M14
M15
M16
PIP-FBL
HS-DS
SUB-V
VS-DS
SDA-S
SCL-S
BA792
NOTE : Long side 38 pins
Short side 26 pins
M11 YF-SUB
M12 UF-SUB
M13 VF-SUB
1V / div DC
10µs / div
CL 96532042_043.eps
201201

FDS Module: Audio


M5
AUDIO
M5
M24
0.5V / div DC
0.5µs / div
M1÷M5
SIF
1600
SFSH 4MHZ5
3600
1K
1601
SFSH
3601
680R
1602
SFSH
3602
470R
1603
SFSH
3603
470R
7600
TDA9820T/V1
M24
M25
IN1
BIG
DIK
7 STAGE LIMITER AMPLIFIER 1
7 STAGE LIMITER AMPLIFIER 2
VCO1
VCO2
CONTROL UNIT
SUPPLY
GND
VP
CSTAB
VCOREF
NC1
C1
C2
VAF1
VAF2
S1
S2
IN2
2603
2u2
2633
100n
5621
6u8
6R8
3650
+8V6
2650
470u
2601
100n
2600
2u2
3604
27K
TO 0346 OF
O
0346
SNDL_FRONT_IN
SNDR_FRONT_IN
-7V8
7V2
DS-AUDIO-R
M30
0344
TO 1344 OF
O
HP_GND
DS-AUDIO-L
M29
CL_DS_L
CL_DS_R
0347
TO 0347 OF
N14
0348
TO/FROM 0344 OF
K3
+7V7
-7V7
7840-A
HEF4053BT
Vdd
Y0
Y1
Z
Vss
Vee
E
+8V6
AM-SOUND
FM-SOUND
AM-FM
SOUND-SELECT
STANDARD-FM-2
STANDARD-FM-1
LMN
FM-SOUND
FDSL-OUT
AM-FM
SNDL_FRONT_IN
FDSR-OUT
SNDR_FRONT_IN
CL_DS_R
SCL-S
SDA-S
CL_DS_L
3605
390R
2605
100n
2631
3629
7623
3631
10K
+5V2
3633
10K
7624
BC847B
7625
BC847B
2638
2u2
3620
6K8
3642
5K6
+8V6A
3623
680R
2630
4u7
3622
100R
7621
BC847B
7622
BC857B
3621
6K8
3624
820R
3625
820R
3626
820R
2634
33n
2639
10u
2626
100n
7620
TDA7309
2625
220n
2622
220n
2620
220n
2623
220n
2632
220n
2629
220n
3635
8K2
3630
27K
3636
8K2
3634
27K
4603
4604
IN1L
IN2L
IN3L
IN1R
IN2R
IN3R
INPUT SELECTOR
VOLUME+ LOUDNESS
MUTE
SERIAL BUS DECODER + LATCHES
SOFT MUTE
SUPPLY
VS
AGND
CREF
RECR
LOUDR
RECL
LOUDL
OUTL
OUTR
DGND
SDA
SCL
ADDR
CSM
2628
100n
5620
6u8
2624
22u
2640
10u
2621
100n
+8V6A
2627
22n
M27
M28
3780
2K2
2784
10u
3781
100K
3768
1K5
3748
22K
7757-B
NJM4556AM
2791
22p
3767
68K
3796
120R
3797
120R
DS-AUDIO-L
+7V7
2796
100u
2792
RES
2785
10n
3782
2K2
2783
10u
3783
100K
3766
1K5
3747
22K
7757-A
NJM4556AM
2794
22p
3765
68K
3799
120R
3798
120R
DS-AUDIO-R
-7V7
2795
100u
2793
RES
2786
10n
CL 16532149_022.eps
171201

0344	E2
0346	D2
0347	F2
0348	F2
1600	B3
1601	C2
1602	C2
1603	D2
2600	E4
2601	E4
2603	C5
2605	B6
2620	D8
2621	F9
2622	D7
2623	E7
2624	F8
2625	D8
2626	D9
2627	E11
2628	F8
2629	E8
2630	A7
2631	B7
2632	E8
2633	D3
2634	B7
2638	A7
2639	C9
2640	F9
2650	E3
2783	E11
2784	D11
2785	C13
2786	F12
2791	E12
2792	C12
2793	F11
2794	F12
2795	F11
2796	C12
3600	B2
3601	C2
3602	C2
3603	D2
3604	E4
3605	A6
3620	A7
3621	B7
3622	A8
3623	A8
3624	B8
3625	B8
3626	B7
3629	B6
3630	E7
3631	C7
3633	C6
3634	E7
3635	E6
3636	E7
3642	A8
3650	E3
3747	E12
3748	D12
3765	F12
3766	F11
3767	E12
3768	D11
3780	D11
3781	D11
3782	E11
3783	F11
3796	D13
3797	D13
3798	F13
3799	F13
4603	E7
4604	F7
5620	F8
5621	E3
7600	C3
7620	D8
7621	A8
7622	A8
7623	B7
7624	C7
7625	C7
7757-A	E12
7757-B	D12
7840-A	F4

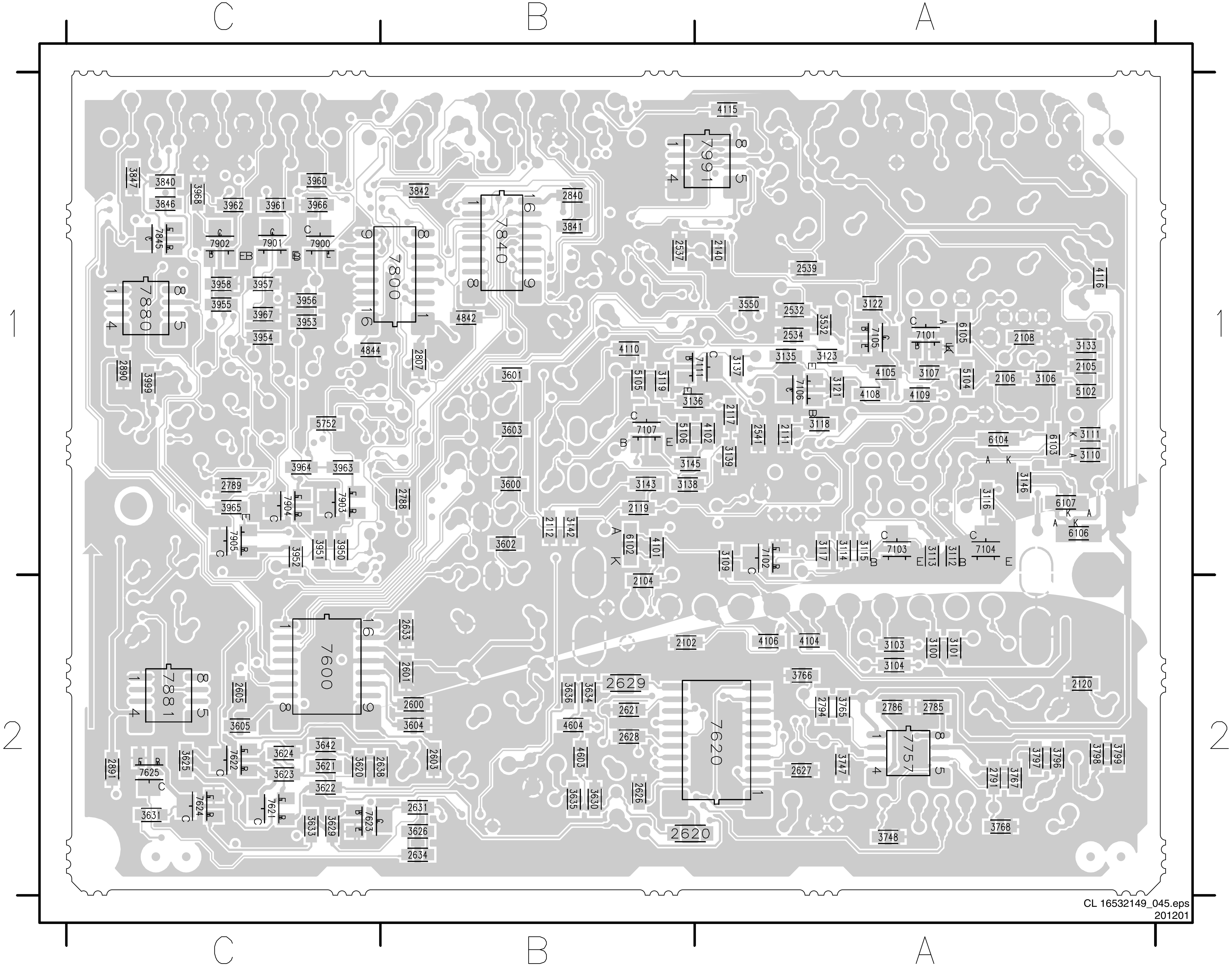
Layout FDS Module (Top View)


C
B
A
1
2
PHILIPS
7750
32
1
33
64
2630
0346
3650
2650
5621
5620
2639
2640
2622
2625
2623
2624
2632
2784
2783
0347
0348
0344
2795
2796
5101
2101
1102
11
1
65
64
39
38
7700
2882
2881
5880
1800
2883
2880
1602
1600
1603
1601
7109
7108
1107
1106
2540
5108
1104
1105
1109
1108
5103
2116
7501
19
20
33
52
2797
2110
2109
2112
1525
1526
1527
1528
3151
3538
5930
5921
5971
5980
7930
7920
7850
7851
7860
7940
6753
5881
5940
2884
6850
7821
5990
7990
7980
7970
7112
2538
5501
5502
0353
0352
0351
10
11
12
13
2
8
9

CL 16532149_044.eps
191201

0344	A1
0346	B1
0347	A1
0348	A1
0351	A2
0352	B2
0353	C2
1102	A1
1104	A2
1105	A2
1106	B2
1107	B2
1108	A2
1109	A2
1525	A2
1526	A2
1527	A2
1528	A2
1600	B2
1601	B2
1602	B2
1603	B2
1800	C2
2101	A1
2107	A2
2109	B2
2110	B2
2116	A2
2118	A2
2122	A2
2501	A2
2502	B2
2503	B2
2504	B2
2505	B2
2506	B2
2507	A2
2508	A2
2509	A2
2510	A2
2511	A2
2512	A2
2520	A2
2521	A2
2522	A2
2525	A2
2526	A2
2527	A2
2528	A2
2536	B2
2538	B2
2540	B2
2545	A2
2553	B2
2554	B2
2622	B1
2623	B1
2624	B1
2625	B1
2630	B1
2632	B1
2639	A1
2640	A1
2650	B1
2748	C2
2749	B2
2750	C2
2751	B2
2752	B2
2753	B2
2754	B2
2755	C2
2756	C2
2757	C2
2758	C2
2759	B2
2760	C2
2761	B2
2762	C2
2763	C2
2764	C1
2765	C2
2766	C2
2767	C2
2768	C2
2769	B2
2770	B2
2771	B1
2772	C2
2773	C2
2774	C1
2775	C1
2776	C1
2777	C1
2778	C1
2779	C1
2780	C1
2781	C1
2782	C2
2783	A1
2784	A1
2787	B2
2792	A1
2793	A1
2795	A1
2796	A1
2797	B2
2798	C2
2800	B2
2801	B2
2802	B2
2803	B2
2804	B2
2805	C2
2845	C2
2860	C2
2880	C2
2881	C1
2882	C1
2883	C2
2884	C2
2920	C2
2922	C2
2923	C2
2932	C2
2934	C2
2942	C2
2944	C2
2970	B2
2972	C2
2973	C2
2982	B2
2983	B2
2992	B2
2993	B2
3102	A2
3124	A2
3134	A2
3140	A2
3144	B2
3147	B2
3148	B2
3151	A2
3152	A2
3153	A2
3154	A2
3501	A2
3504	B2
3521	A2
3530	A2
3531	A2
3538	A2
3545	A2
3546	A2
3650	B1
3750	C2
3751	B2
3752	C2
3753	C2
3754	C2
3755	C2
3756	C2
3757	C2
3780	A1
3781	A1
3782	A1
3783	A1
3843	B2
3844	C2
3845	C2
3880	A2
3923	C2
3924	C2
3928	C2
3930	C2
3932	C2
3935	C2
3937	C2
3940	C2
3942	C2
3943	C2
3947	C2
3972	C2
3974	B2
3978	C2
3980	B2
3981	B2
3983	B2
3987	B2
3990	B2
3991	B2
3992	B2
3997	B2
4111	B2
4113	B2
4843	B2
4845	B2
5101	A1
5103	A2
5108	A2
5501	A2
5502	A2
5620	B1
5621	B1
5880	C2
5881	C2
5882	C1
5921	C2
5930	C2
5940	C2
5971	C2
5980	B2
5990	B2
6753	C2
6850	C2
6880	C2
6881	C2
6883	C2
6884	C2
7108	B2
7109	B2
7112	A2
7501	B2
7502	A2
7700	C1
7750	C1
7821	C2
7850	C2
7851	C2
7860	C2
7920	C2
7930	C2
7940	C2
7970	B2
7980	B2
7990	B2

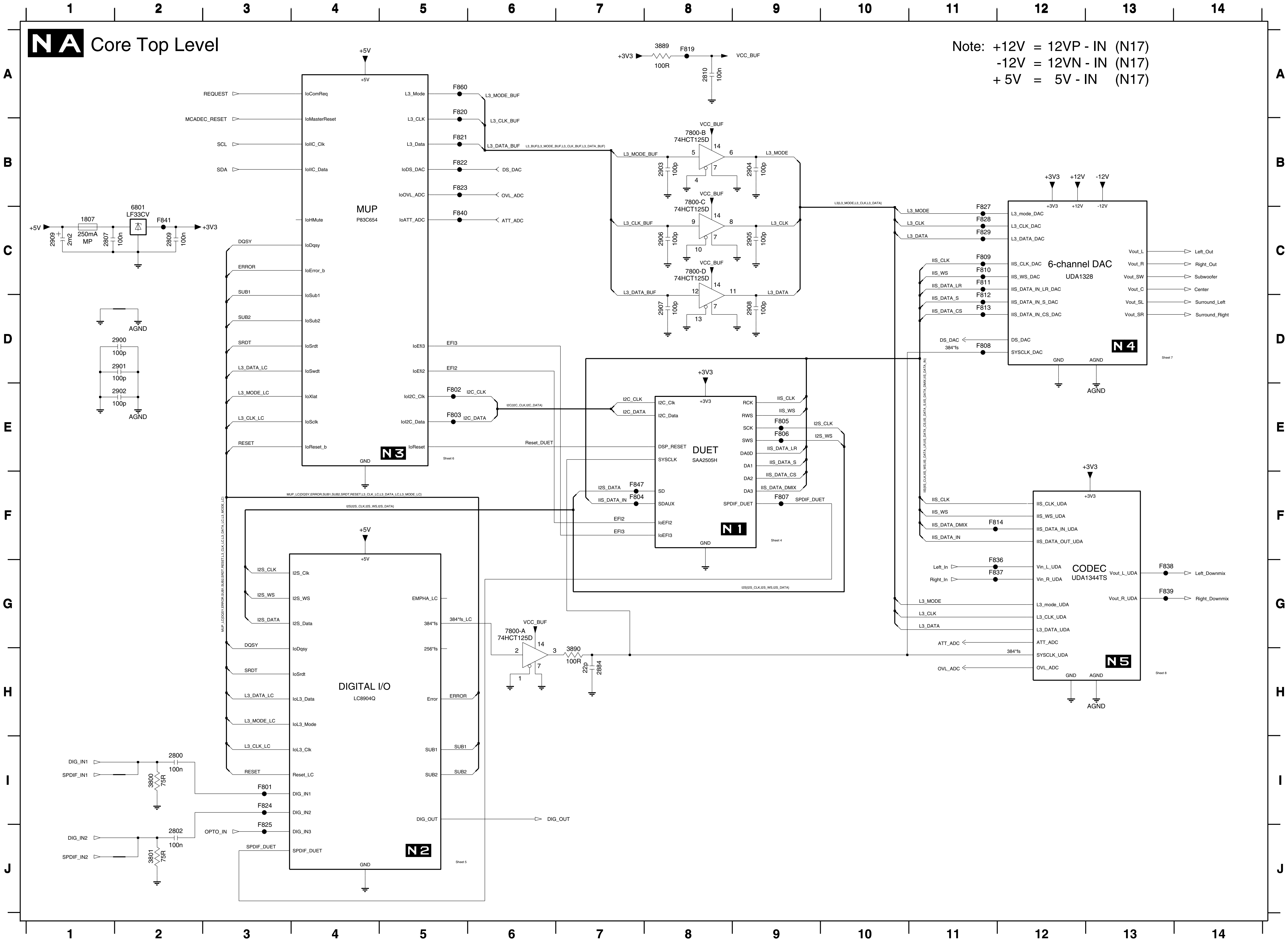
Layout FDS Module (Bottom View)



CL 16532149_045.eps
201201

2102	B2	3602	B1	6104	A1
2104	B2	3603	B1	6105	A1
2105	A1	3604	B2	6106	A1
2106	A1	3605	C2	6107	A1
2108	A1	3620	C2	7101	A1
2111	A1	3621	C2	7102	A1
2112	B1	3622	C2	7103	A2
2117	A1	3623	C2	7104	A2
2119	B1	3624	C2	7105	A1
2120	A2	3625	C2	7106	A1
2140	A1	3626	B2	7107	B1
2532	A1	3629	C2	7111	A1
2534	A1	3630	B2	7600	C2
2537	B1	3631	C2	7620	A2
2539	A1	3633	C2	7621	C2
2541	A1	3634	B2	7622	C2
2600	B2	3635	B2	7623	C2
2601	B2	3636	B2	7624	C2
2603	B2	3642	C2	7625	C2
2605	C2	3747	A2	7757	A2
2620	B2	3748	A2	7800	B1
2621	B2	3765	A2	7840	B1
2626	B2	3766	A2	7845	C1
2627	A2	3767	A2	7880	C1
2628	B2	3768	A2	7881	C2
2629	B2	3796	A2	7900	C1
2631	B2	3797	A2	7901	C1
2633	B2	3798	A2	7902	C1
2634	B2	3799	A2	7903	C1
2638	B2	3840	C1	7904	C1
2785	A2	3841	B1	7905	C1
2786	A2	3842	B1	7991	A1
2788	B1	3846	C1		
2789	C1	3847	C1		
2791	A2	3950	C1		
2794	A2	3951	C1		
2807	B1	3952	C1		
2840	B1	3953	C1		
2890	C1	3954	C1		
2891	C2	3955	C1		
3100	A2	3956	C1		
3101	A2	3957	C1		
3103	A2	3958	C1		
3104	A2	3960	C1		
3106	A1	3961	C1		
3107	A1	3962	C1		
3109	A1	3963	C1		
3110	A1	3964	C1		
3111	A1	3965	C1		
3112	A1	3966	C1		
3113	A1	3967	C1		
3114	A1	3968	C1		
3115	A1	3999	C1		
3116	A1	4101	B1		
3117	A1	4102	A1		
3118	A1	4104	A2		
3119	B1	4105	A1		
3121	A1	4106	A2		
3122	A1	4108	A1		
3123	A1	4109	A1		
3133	A1	4110	B1		
3135	A1	4115	A1		
3136	B1	4116	A1		
3137	A1	4603	B2		
3138	B1	4604	B2		
3139	A1	4842	B1		
3142	B1	4844	C1		
3143	B1	5102	A1		
3145	B1	5104	A1		
3146	A1	5105	B1		
3532	A1	5106	B1		
3550	A1	5752	C1		
3600	B1	6102	B1		
3601	B1	6103	A1		

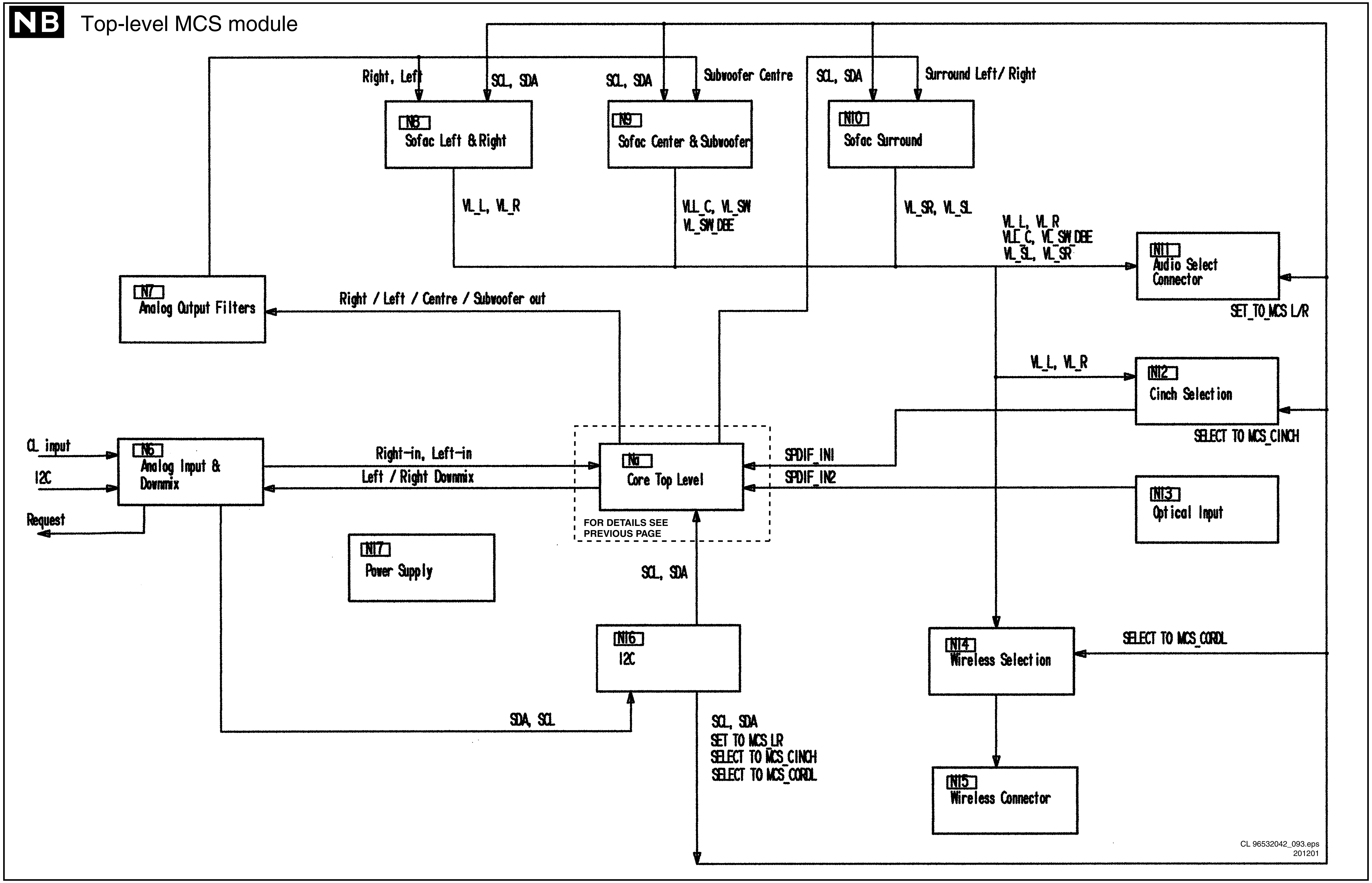
Multi-Channel Sound Module: Core Top Level


NA Core Top Level
Note: +12V = 12VP - IN (N17)
-12V = 12VN - IN (N17)
+ 5V = 5V - IN (N17)
MUP
P83C654
N3
DUET
SAA2505H
N1
DIGITAL I/O
LC8904Q
N2
6-channel DAC
UDA1328
N4
CODEC
UDA1344TS
N5
7800-A 74HCT125D
7800-B 74HCT125D
7800-C 74HCT125D
7800-D 74HCT125D
6801 LF33CV
1807 250mA MP
3889 100R
3890 100R
3800 75R
3801 75R
2800 100n
2802 100n
2900 100p
2901 100p
2902 100p
2884 22p
+5V
+3V3
+12V
-12V
VCC_BUF
AGND
REQUEST
MCADEC_RESET
SCL
SDA
DS_DAC
OVL_ADC
ATT_ADC
L3_MODE_BUF
L3_CLK_BUF
L3_DATA_BUF
L3_MODE
L3_CLK
L3_DATA
I2C_CLK
I2C_DATA
I2S_CLK
I2S_WS
I2S_DATA
IIS_CLK
IIS_WS
IIS_DATA_LR
IIS_DATA_S
IIS_DATA_CS
IIS_DATA_DMIX
IIS_DATA_IN
SPDIF_DUET
Reset_DUET
EFI2
EFI3
384*fs
Left_Out
Right_Out
Subwoofer
Center
Surround_Left
Surround_Right
Left_In
Right_In
Left_Downmix
Right_Downmix
DIG_IN1
SPDIF_IN1
DIG_IN2
SPDIF_IN2
OPTO_IN
DIG_OUT
Sheet 4
Sheet 5
Sheet 6
Sheet 7
Sheet 8

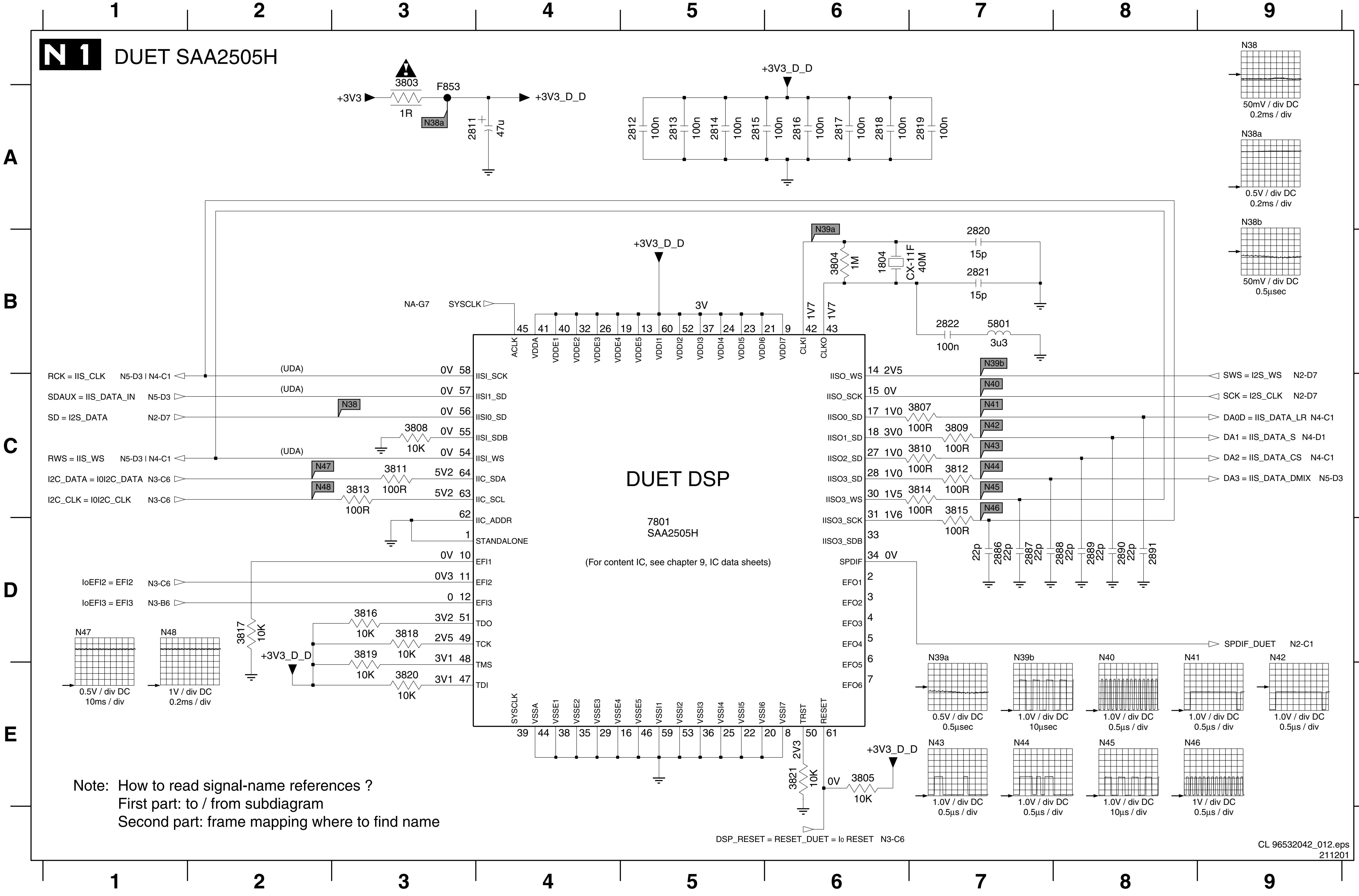
2800	I2
2802	J2
2807	C1
2809	C2
2810	A8
2884	H7
2900	D2
2901	D2
2902	E2
2903	B8
2904	B9
2905	C9
2906	C8
2907	D8
2908	D9
2909	C1
3800	I2
3801	J2
3889	A8
3890	H7
6801	C2
7800-A	G6
7800-B	B8
7800-C	B8
7800-D	C8
F801	I3
F802	E5
F803	E5
F804	F7
F805	E9
F806	E9
F807	F9
F808	D11
F809	C11
F810	C11
F811	C11
F812	D11
F813	D11
F814	F11
F819	A8
F820	A5
F821	B5
F822	B5
F823	B5
F824	I3
F825	J3
F827	C11
F828	C11
F829	C11
F836	G11
F837	G11
F838	G13
F839	G13
F840	C5
F841	A2
F847	F7
F860	A5

CL 96532042_029
200599

Multi-Channel Sound Module: Top Level

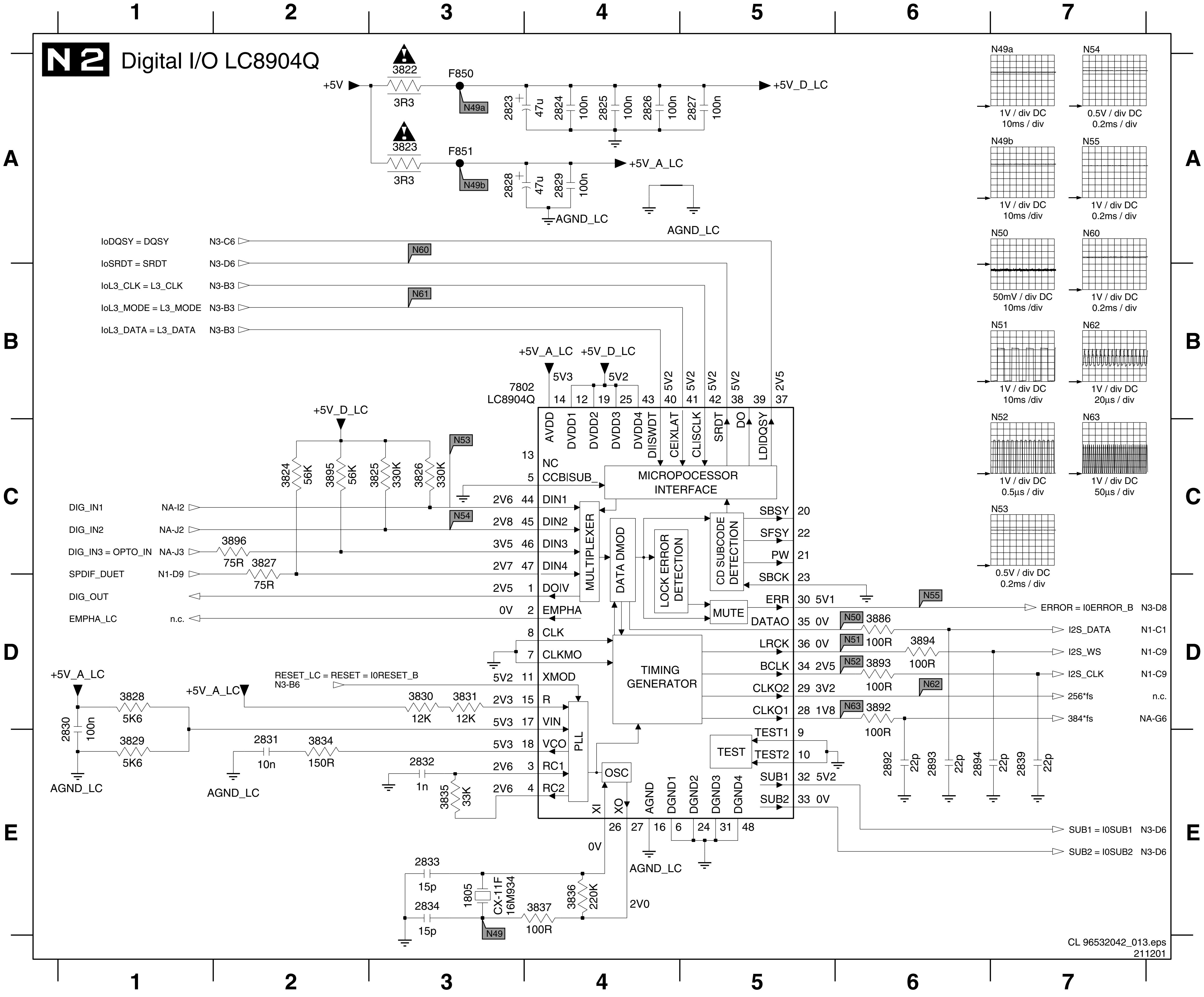

NB
Top-level MCS module
Right, Left
SCL, SDA
SCL, SDA
Subwoofer Centre
SCL, SDA
Surround Left/ Right
N8
Sofac Left & Right
N9
Sofac Center & Subwoofer
N10
Sofac Surround
VL_L, VL_R
VLL_C, VL_SW
VL_SW DBE
VL_SR, VL_SL
VL_L, VL_R
VLL_C, VL_SW DBE
VL_SL, VL_SR
N11
Audio Select
Connector
SET_TO_MCS L/R
N7
Analog Output Filters
Right / Left / Centre / Subwoofer out
VL_L, VL_R
N12
Cinch Selection
SELECT TO MCS_CINCH
CL input
I2C
Request
N6
Analog Input &
Downmix
Right-in, Left-in
Left / Right Downmix
Na
Core Top Level
FOR DETAILS SEE
PREVIOUS PAGE
SPDIF_IN1
SPDIF_IN2
N13
Optical Input
N17
Power Supply
SCL, SDA
N16
I2C
SDA, SCL
SCL, SDA
SET TO MCS LR
SELECT TO MCS_CINCH
SELECT TO MCS_CORDL
SELECT TO MCS_CORDL
N14
Wireless Selection
N15
Wireless Connector
CL 96532042_093.eps
201201

Multi-Channel Sound Module: Duet SAA2505H


1 2 3 4 5 6 7 8 9
A B C D E
N1 DUET SAA2505H
+3V3
3803
1R
F853
N38a
+3V3_D_D
2811
47u
2812 100n 2813 100n 2814 100n 2815 100n 2816 100n 2817 100n 2818 100n 2819 100n
N38
50mV / div DC
0.2ms / div
N38a
0.5V / div DC
0.2ms / div
N38b
50mV / div DC
0.5µsec
N39a
3804
1M
1804
CX-11F
40M
2820
15p
2821
15p
2822
100n
5801
3u3
NA-G7 SYSCLK
3V
1V7 1V7
45 41 40 32 26 19 13 60 52 37 24 23 21 9 42 43
ACLK VDDA VDDE1 VDDE2 VDDE3 VDDE4 VDDE5 VDDI1 VDDI2 VDDI3 VDDI4 VDDI5 VDDI6 VDDI7 CLKI CLKO
RCK = IIS_CLK N5-D3 | N4-C1
SDAUX = IIS_DATA_IN N5-D3
SD = I2S_DATA N2-D7
RWS = IIS_WS N5-D3 | N4-C1
I2C_DATA = I0I2C_DATA N3-C6
I2C_CLK = I0I2C_CLK N3-C6
(UDA)
N38
N47
N48
3808 10K
3811 100R
3813 100R
0V 58 IISI_SCK
0V 57 IISI1_SD
0V 56 IISI0_SD
0V 55 IISI_SDB
0V 54 IISI_WS
5V2 64 IIC_SDA
5V2 63 IIC_SCL
62 IIC_ADDR
1 STANDALONE
0V 10 EFI1
0V3 11 EFI2
0 12 EFI3
3V2 51 TDO
2V5 49 TCK
3V1 48 TMS
3V1 47 TDI
IoEFI2 = EFI2 N3-C6
IoEFI3 = EFI3 N3-B6
3817 10K
3816 10K
3818 10K
3819 10K
3820 10K
N47
0.5V / div DC
10ms / div
N48
1V / div DC
0.2ms / div
DUET DSP
7801
SAA2505H
(For content IC, see chapter 9, IC data sheets)
IISO_WS 14 2V5
IISO_SCK 15 0V
IISO0_SD 17 1V0
IISO1_SD 18 3V0
IISO2_SD 27 1V0
IISO3_SD 28 1V0
IISO3_WS 30 1V5
IISO3_SCK 31 1V6
IISO3_SDB 33
SPDIF 34 0V
EFO1 2
EFO2 3
EFO3 4
EFO4 5
EFO5 6
EFO6 7
3807 100R
3809 100R
3810 100R
3812 100R
3814 100R
3815 100R
N39b N40 N41 N42 N43 N44 N45 N46
2886 22p 2887 22p 2888 22p 2889 22p 2890 22p 2891 22p
SWS = I2S_WS N2-D7
SCK = I2S_CLK N2-D7
DA0D = IIS_DATA_LR N4-C1
DA1 = IIS_DATA_S N4-D1
DA2 = IIS_DATA_CS N4-C1
DA3 = IIS_DATA_DMIX N5-D3
SPDIF_DUET N2-C1
SYSCLK VSSA VSSE1 VSSE2 VSSE3 VSSE4 VSSE5 VSSI1 VSSI2 VSSI3 VSSI4 VSSI5 VSSI6 VSSI7 TRST RESET
39 44 38 35 29 16 46 59 53 36 25 22 20 8 50 61
2V3
3821 10K
0V
3805 10K
DSP_RESET = RESET_DUET = Io RESET N3-C6
N39a 0.5V / div DC 0.5µsec
N39b 1.0V / div DC 10µsec
N40 1.0V / div DC 0.5µs / div
N41 1.0V / div DC 0.5µs / div
N42 1.0V / div DC 0.5µs / div
N43 1.0V / div DC 0.5µs / div
N44 1.0V / div DC 0.5µs / div
N45 1.0V / div DC 10µs / div
N46 1V / div DC 0.5µs / div
Note: How to read signal-name references ?
First part: to / from subdiagram
Second part: frame mapping where to find name
CL 96532042_012.eps
211201

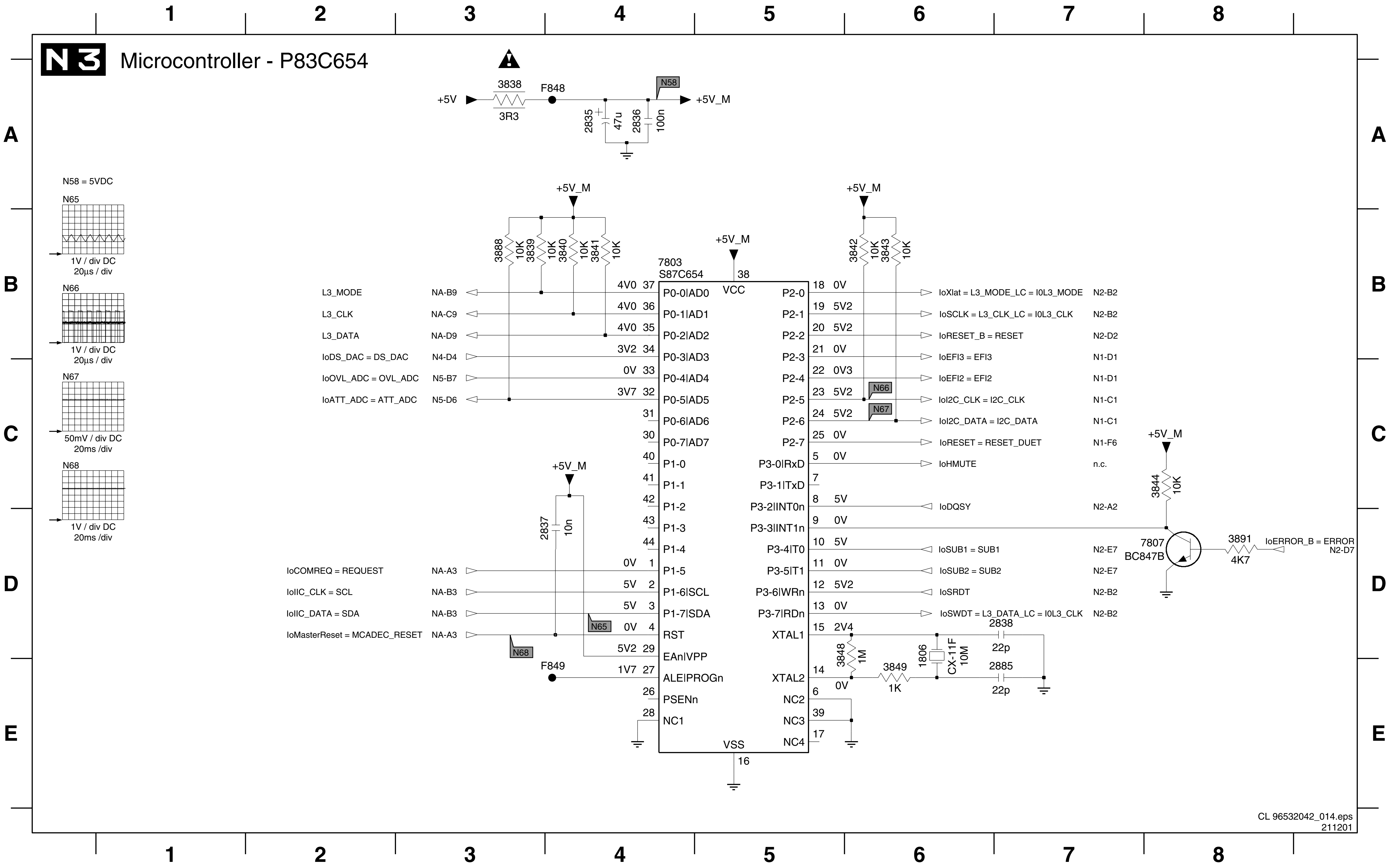
1804	B6
2811	A4
2812	A5
2813	A5
2814	A5
2815	A5
2816	A6
2817	A6
2818	A6
2819	A7
2820	B7
2821	B7
2822	B7
2886	D7
2887	D7
2888	D8
2889	D8
2890	D8
2891	D8
3803	A3
3804	B6
3805	E6
3807	C7
3808	C3
3809	C7
3810	C7
3811	C3
3812	C7
3813	C3
3814	C7
3815	C7
3816	D3
3817	D2
3818	D3
3819	D3
3820	E3
3821	E6
5801	B7
7801	D5
F853	A1

Multi-Channel Sound Module: Digital I/O LC8904Q


N2 Digital I/O LC8904Q
1 2 3 4 5 6 7
A B C D E
+5V
3822 3R3
3823 3R3
F850
F851
N49a
N49b
2823 47u
2824 100n
2825 100n
2826 100n
2827 100n
2828 47u
2829 100n
+5V_D_LC
+5V_A_LC
AGND_LC
IoDQSY = DQSY N3-C6
IoSRDT = SRDT N3-D6
IoL3_CLK = L3_CLK N3-B3
IoL3_MODE = L3_MODE N3-B3
IoL3_DATA = L3_DATA N3-B3
N60
N61
7802 LC8904Q
5V3 5V2 5V2 5V2 5V2 5V2 2V5
14 12 19 25 43 40 41 42 38 39 37
AVDD DVDD1 DVDD2 DVDD3 DVDD4 DIISWDT CEIXLAT CLISCLK SRDT DO LDIDQSY
MICROPROCESSOR INTERFACE
13 NC
5 CCBISUB
N53
N54
3824 56K
3895 56K
3825 330K
3826 330K
DIG_IN1 NA-I2
DIG_IN2 NA-J2
DIG_IN3 = OPTO_IN NA-J3
SPDIF_DUET N1-D9
DIG_OUT
EMPHA_LC n.c.
3896 75R
3827 75R
2V6 44 DIN1
2V8 45 DIN2
3V5 46 DIN3
2V7 47 DIN4
2V5 1 DOIV
0V 2 EMPHA
8 CLK
7 CLKMO
5V2 11 XMOD
2V3 15 R
5V3 17 VIN
5V3 18 VCO
2V6 3 RC1
2V6 4 RC2
MULTIPLEXER
DATA DMOD
LOCK ERROR DETECTION
CD SUBCODE DETECTION
MUTE
TIMING GENERATOR
PLL
OSC
TEST
SBSY 20
SFSY 22
PW 21
SBCK 23
ERR 30 5V1
DATAO 35 0V
LRCK 36 0V
BCLK 34 2V5
CLKO2 29 3V2
CLKO1 28 1V8
TEST1 9
TEST2 10
SUB1 32 5V2
SUB2 33 0V
XI XO AGND DGND1 DGND2 DGND3 DGND4
26 27 16 6 24 31 48
N55
N50 3886 100R
N51 3894 100R
N52 3893 100R
N62
N63 3892 100R
ERROR = I0ERROR_B N3-D8
I2S_DATA N1-C1
I2S_WS N1-C9
I2S_CLK N1-C9
256*fs n.c.
384*fs NA-G6
2892 22p
2893 22p
2894 22p
2839 22p
SUB1 = I0SUB1 N3-D6
SUB2 = I0SUB2 N3-D6
RESET_LC = RESET = I0RESET_B N3-B6
3828 5K6
3829 5K6
2830 100n
3830 12K
3831 12K
2831 10n
3834 150R
2832 1n
3835 33K
0V
2833 15p
2834 15p
1805 CX-11F 16M934
3836 220K
3837 100R
2V0
N49
N49a 1V / div DC 10ms / div
N54 0.5V / div DC 0.2ms / div
N49b 1V / div DC 10ms /div
N55 1V / div DC 0.2ms / div
N50 50mV / div DC 10ms /div
N60 1V / div DC 0.2ms / div
N51 1V / div DC 10ms /div
N62 1V / div DC 20µs / div
N52 1V / div DC 0.5µs / div
N63 1V / div DC 50µs / div
N53 0.5V / div DC 0.2ms / div
CL 96532042_013.eps
211201

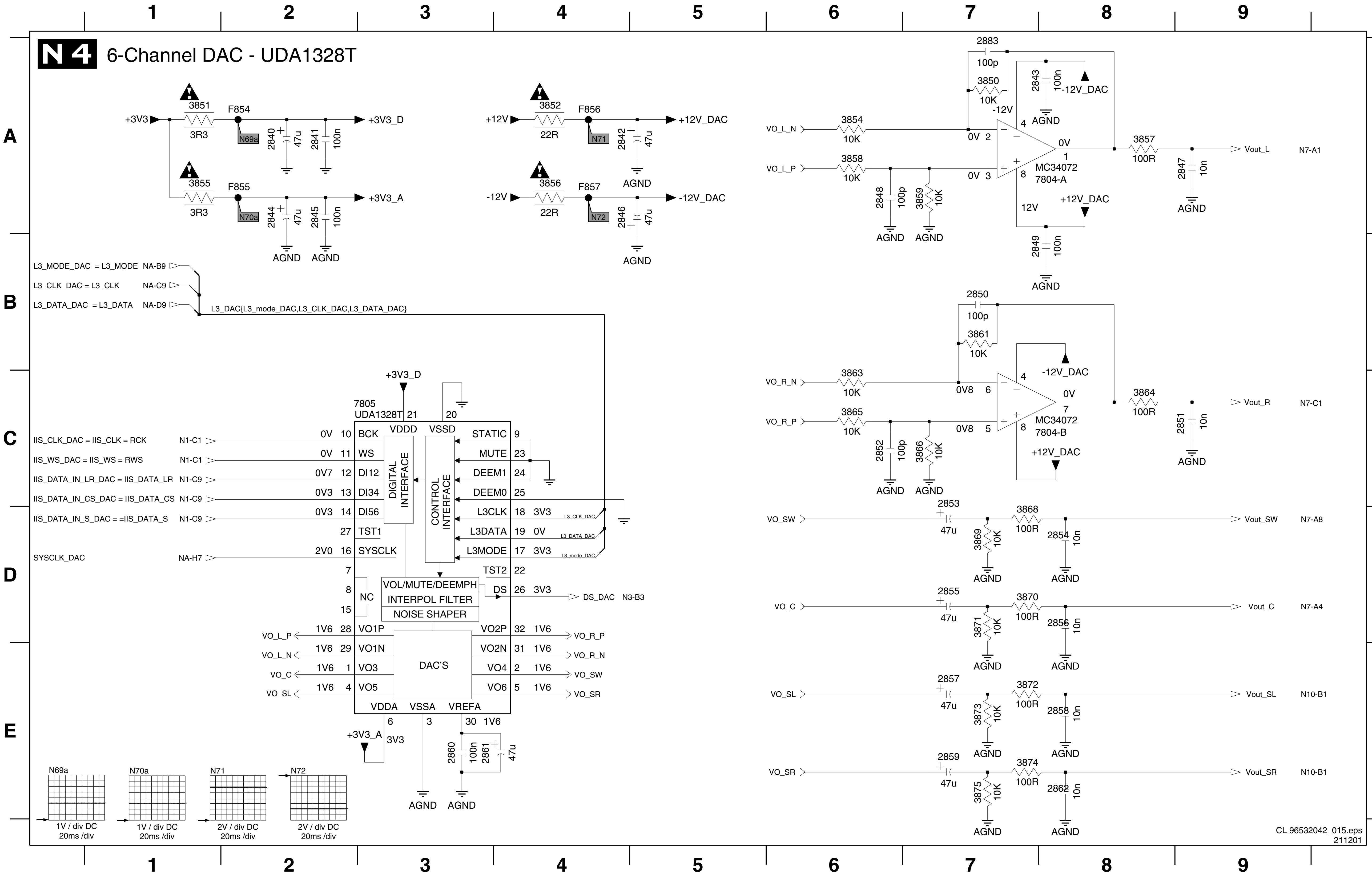
1805	E3
2823	A3
2824	A4
2825	A4
2826	A4
2827	A5
2828	A3
2829	A4
2830	D1
2831	E2
2832	E3
2833	E3
2834	E3
2839	E7
2892	E6
2893	E6
2894	E6
3822	A3
3823	A3
3824	C2
3825	C3
3826	C3
3827	C2
3828	D1
3829	E1
3830	D3
3831	D3
3834	E2
3835	E3
3836	E4
3837	E4
3886	D6
3892	D6
3893	D6
3894	D6
3895	C3
3896	C2
7802	B3
F850	A2
F851	A2

Multi-Channel Sound Module: Micro Controller P83C654


N3
Microcontroller - P83C654
+5V
3838
3R3
F848
N58
+5V_M
2835
47u
2836
100n
N58 = 5VDC
N65
1V / div DC
20µs / div
N66
1V / div DC
20µs / div
N67
50mV / div DC
20ms /div
N68
1V / div DC
20ms /div
+5V_M
3888 10K
3839 10K
3840 10K
3841 10K
+5V_M
3842 10K
3843 10K
+5V_M
7803
S87C654
38
VCC
L3_MODE NA-B9 4V0 37 P0-0|AD0
L3_CLK NA-C9 4V0 36 P0-1|AD1
L3_DATA NA-D9 4V0 35 P0-2|AD2
IoDS_DAC = DS_DAC N4-D4 3V2 34 P0-3|AD3
IoOVL_ADC = OVL_ADC N5-B7 0V 33 P0-4|AD4
IoATT_ADC = ATT_ADC N5-D6 3V7 32 P0-5|AD5
31 P0-6|AD6
30 P0-7|AD7
40 P1-0
41 P1-1
42 P1-2
43 P1-3
44 P1-4
IoCOMREQ = REQUEST NA-A3 0V 1 P1-5
IoIIC_CLK = SCL NA-B3 5V 2 P1-6|SCL
IoIIC_DATA = SDA NA-B3 5V 3 P1-7|SDA
IoMasterReset = MCADEC_RESET NA-A3 N65 0V 4 RST
N68
5V2 29 EAn|VPP
F849 1V7 27 ALE|PROGn
26 PSENn
28 NC1
+5V_M
2837
10n
P2-0 18 0V IoXlat = L3_MODE_LC = I0L3_MODE N2-B2
P2-1 19 5V2 IoSCLK = L3_CLK_LC = I0L3_CLK N2-B2
P2-2 20 5V2 IoRESET_B = RESET N2-D2
P2-3 21 0V IoEFI3 = EFI3 N1-D1
P2-4 22 0V3 IoEFI2 = EFI2 N1-D1
P2-5 23 5V2 N66 IoI2C_CLK = I2C_CLK N1-C1
P2-6 24 5V2 N67 IoI2C_DATA = I2C_DATA N1-C1
P2-7 25 0V IoRESET = RESET_DUET N1-F6
P3-0|RxD 5 0V IoHMUTE n.c.
P3-1|TxD 7
P3-2|INT0n 8 5V IoDQSY N2-A2
P3-3|INT1n 9 0V
P3-4|T0 10 5V IoSUB1 = SUB1 N2-E7
P3-5|T1 11 0V IoSUB2 = SUB2 N2-E7
P3-6|WRn 12 5V2 IoSRDT N2-B2
P3-7|RDn 13 0V IoSWDT = L3_DATA_LC = I0L3_CLK N2-B2
XTAL1 15 2V4
XTAL2 14 0V
NC2 6
NC3 39
NC4 17
VSS
16
3848
1M
3849
1K
1806
CX-11F
10M
2838
22p
2885
22p
+5V_M
3844
10K
7807
BC847B
3891
4K7
IoERROR_B = ERROR
N2-D7
1 2 3 4 5 6 7 8
A B C D E
CL 96532042_014.eps
211201

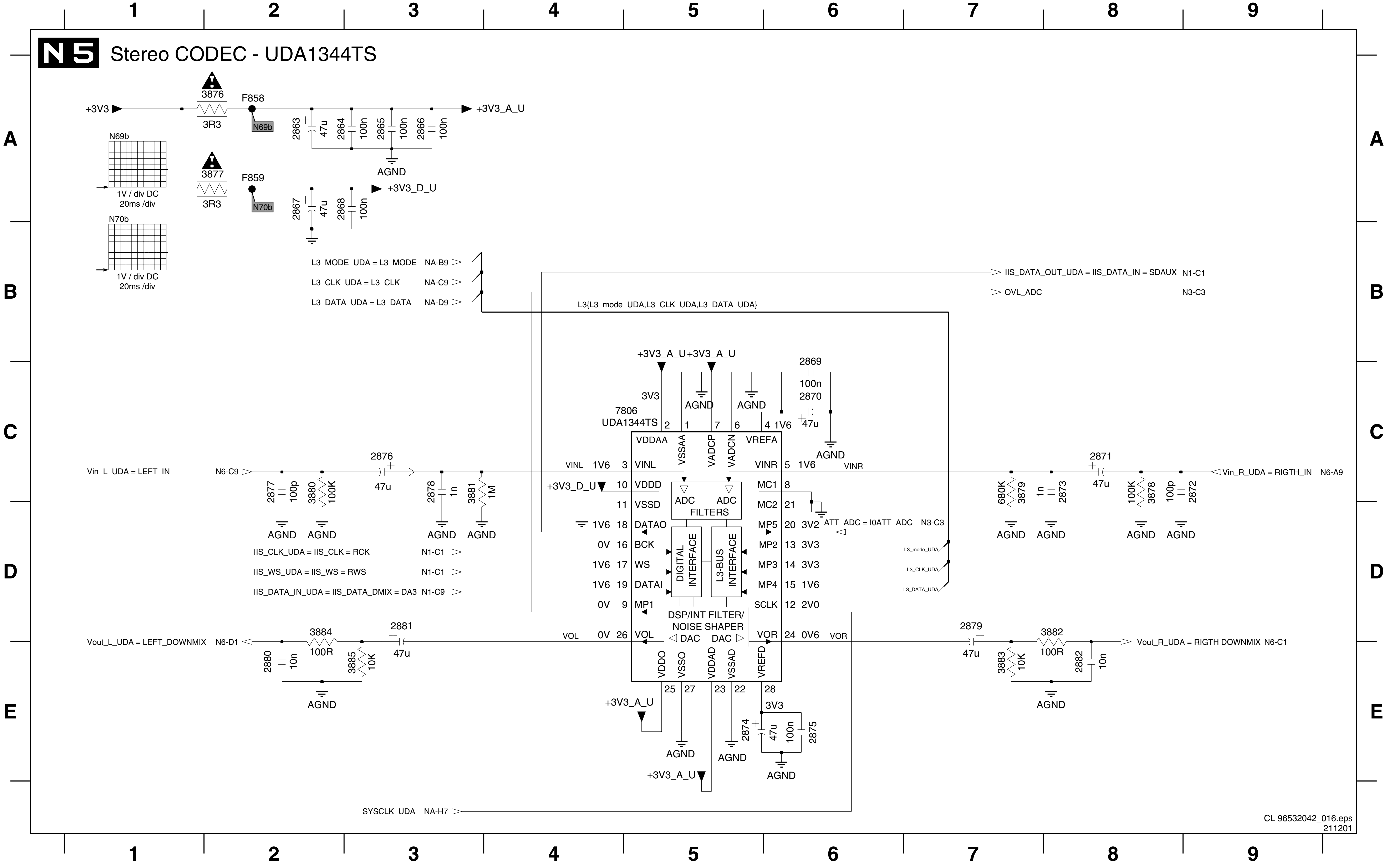
1806	D6
2835	A4
2836	A4
2837	D4
2838	D7
2885	E7
3838	A3
3839	B3
3840	B4
3841	B4
3842	B6
3843	B6
3844	C7
3848	D5
3849	E6
3888	B3
3891	D8
7803	B4
7807	D7
F848	A4
F849	E4

Multi-Channel Sound Module: 6-Channel DAC - UDA1328T


1
2
3
4
5
6
7
8
9
A
B
C
D
E
N 4
6-Channel DAC - UDA1328T
+3V3
3851
3R3
F854
N69a
2840
47u
2841
100n
+3V3_D
3855
3R3
F855
N70a
2844
47u
2845
100n
+3V3_A
AGND
AGND
+12V
3852
22R
F856
N71
2842
47u
AGND
+12V_DAC
-12V
3856
22R
F857
N72
2846
47u
AGND
-12V_DAC
L3_MODE_DAC = L3_MODE NA-B9
L3_CLK_DAC = L3_CLK NA-C9
L3_DATA_DAC = L3_DATA NA-D9
L3_DAC{L3_mode_DAC,L3_CLK_DAC,L3_DATA_DAC}
IIS_CLK_DAC = IIS_CLK = RCK N1-C1
IIS_WS_DAC = IIS_WS = RWS N1-C1
IIS_DATA_IN_LR_DAC = IIS_DATA_LR N1-C9
IIS_DATA_IN_CS_DAC = IIS_DATA_CS N1-C9
IIS_DATA_IN_S_DAC = =IIS_DATA_S N1-C9
SYSCLK_DAC NA-H7
+3V3_D
7805
UDA1328T
21
20
VDDD
VSSD
0V 10 BCK
0V 11 WS
0V7 12 DI12
0V3 13 DI34
0V3 14 DI56
27 TST1
2V0 16 SYSCLK
7
8
15
NC
DIGITAL INTERFACE
CONTROL INTERFACE
STATIC 9
MUTE 23
DEEM1 24
DEEM0 25
L3CLK 18 3V3
L3DATA 19 0V
L3MODE 17 3V3
TST2 22
DS 26 3V3
L3_CLK_DAC
L3_DATA_DAC
L3_mode_DAC
DS_DAC N3-B3
VOL/MUTE/DEEMPH
INTERPOL FILTER
NOISE SHAPER
DAC'S
VO_L_P 1V6 28 VO1P
VO_L_N 1V6 29 VO1N
VO_C 1V6 1 VO3
VO_SL 1V6 4 VO5
VO2P 32 1V6 VO_R_P
VO2N 31 1V6 VO_R_N
VO4 2 1V6 VO_SW
VO6 5 1V6 VO_SR
VDDA
VSSA
VREFA
6
3
30 1V6
+3V3_A
3V3
2860
100n
2861
47u
AGND
AGND
N69a
1V / div DC
20ms /div
N70a
1V / div DC
20ms /div
N71
2V / div DC
20ms /div
N72
2V / div DC
20ms /div
2883
100p
3850
10K
2843
100n
-12V_DAC
-12V
AGND
VO_L_N
3854
10K
0V 2
4
VO_L_P
3858
10K
0V 3
8
0V
1
MC34072
7804-A
12V
+12V_DAC
2848
100p
3859
10K
AGND
AGND
2849
100n
AGND
3857
100R
2847
10n
AGND
Vout_L
N7-A1
2850
100p
3861
10K
-12V_DAC
VO_R_N
3863
10K
0V8 6
4
VO_R_P
3865
10K
0V8 5
8
0V
7
MC34072
7804-B
+12V_DAC
2852
100p
3866
10K
AGND
AGND
3864
100R
2851
10n
AGND
Vout_R
N7-C1
VO_SW
2853
47u
3869
10K
AGND
3868
100R
2854
10n
AGND
Vout_SW
N7-A8
VO_C
2855
47u
3871
10K
AGND
3870
100R
2856
10n
AGND
Vout_C
N7-A4
VO_SL
2857
47u
3873
10K
AGND
3872
100R
2858
10n
AGND
Vout_SL
N10-B1
VO_SR
2859
47u
3875
10K
AGND
3874
100R
2862
10n
AGND
Vout_SR
N10-B1
CL 96532042_015.eps
211201

2840	**A2**
2841	**A2**
2842	**A4**
2843	**A7**
2844	**A2**
2845	**A2**
2846	**A4**
2847	**A9**
2848	**A6**
2849	**B7**
2850	**B7**
2851	**C9**
2852	**C6**
2853	**D7**
2854	**D8**
2855	**D7**
2856	**D8**
2857	**E7**
2858	**E8**
2859	**E7**
2860	**E3**
2861	**E3**
2862	**E8**
2883	**A7**
3850	**A7**
3851	**A1**
3852	**A4**
3854	**A6**
3855	**A1**
3856	**A4**
3857	**A8**
3858	**A6**
3859	**A7**
3861	**B7**
3863	**C6**
3864	**C8**
3865	**C6**
3866	**C7**
3868	**D7**
3869	**D7**
3870	**D7**
3871	**D7**
3872	**E7**
3873	**E7**
3874	**E7**
3875	**E7**
7804-A	**A7**
7804-B	**C7**
7805	**C2**
F854	**A2**
F855	**A2**
F856	**A4**
F857	**A4**

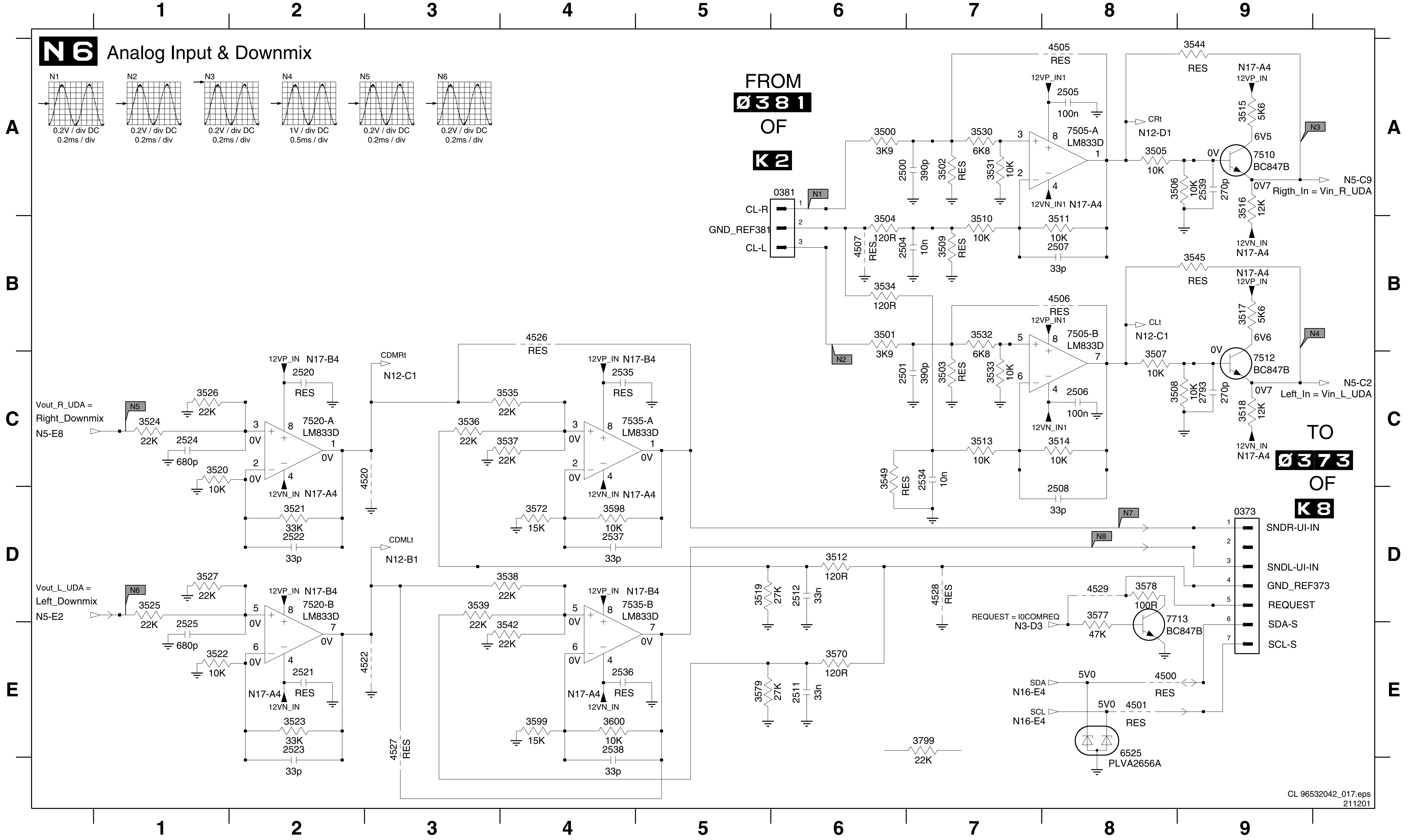
Multi-Channel Sound Module: Stereo CODEC - UDA 1344TS


N5
Stereo CODEC - UDA1344TS
1 2 3 4 5 6 7 8 9
A B C D E
+3V3
3876
3R3
F858
N69b
+3V3_A_U
2863 47u
2864 100n
2865 100n
2866 100n
AGND
3877
3R3
F859
N70b
+3V3_D_U
2867 47u
2868 100n
1V / div DC
20ms /div
L3_MODE_UDA = L3_MODE NA-B9
L3_CLK_UDA = L3_CLK NA-C9
L3_DATA_UDA = L3_DATA NA-D9
L3{L3_mode_UDA,L3_CLK_UDA,L3_DATA_UDA}
IIS_DATA_OUT_UDA = IIS_DATA_IN = SDAUX N1-C1
OVL_ADC N3-C3
2869 100n
2870 47u
3V3
7806
UDA1344TS
VDDAA VSSAA VADCP VADCN VREFA
VINL VDDD VSSD DATAO BCK WS DATAI MP1 VOL
VINR MC1 MC2 MP5 MP2 MP3 MP4 SCLK VOR
VDDO VSSO VDDAD VSSAD VREFD
ADC ADC FILTERS
DIGITAL INTERFACE
L3-BUS INTERFACE
DSP/INT FILTER/ NOISE SHAPER
DAC DAC
Vin_L_UDA = LEFT_IN N6-C9
2876 47u
2877 100p
3880 100K
2878 1n
3881 1M
VINL
ATT_ADC = I0ATT_ADC N3-C3
IIS_CLK_UDA = IIS_CLK = RCK N1-C1
IIS_WS_UDA = IIS_WS = RWS N1-C1
IIS_DATA_IN_UDA = IIS_DATA_DMIX = DA3 N1-C9
L3_mode_UDA
L3_CLK_UDA
L3_DATA_UDA
Vin_R_UDA = RIGTH_IN N6-A9
2871 47u
680K 3879
1n 2873
100K 3878
100p 2872
VINR
Vout_L_UDA = LEFT_DOWNMIX N6-D1
3884 100R
2881 47u
2880 10n
3885 10K
VOL
VOR
2879 47u
3882 100R
3883 10K
2882 10n
Vout_R_UDA = RIGTH DOWNMIX N6-C1
2874 47u
100n 2875
SYSCLK_UDA NA-H7
CL 96532042_016.eps
211201

2863	A2
2864	A3
2865	A3
2866	A3
2867	A2
2868	A3
2869	C6
2870	C6
2871	C8
2872	C9
2873	C8
2874	E5
2875	E6
2876	C3
2877	C2
2878	C3
2879	D7
2880	E2
2881	D3
2882	E8
3876	A2
3877	A2
3878	C8
3879	C7
3880	C2
3881	C3
3882	D8
3883	E7
3884	D2
3885	E3
7806	C5
F858	A2
F859	A2

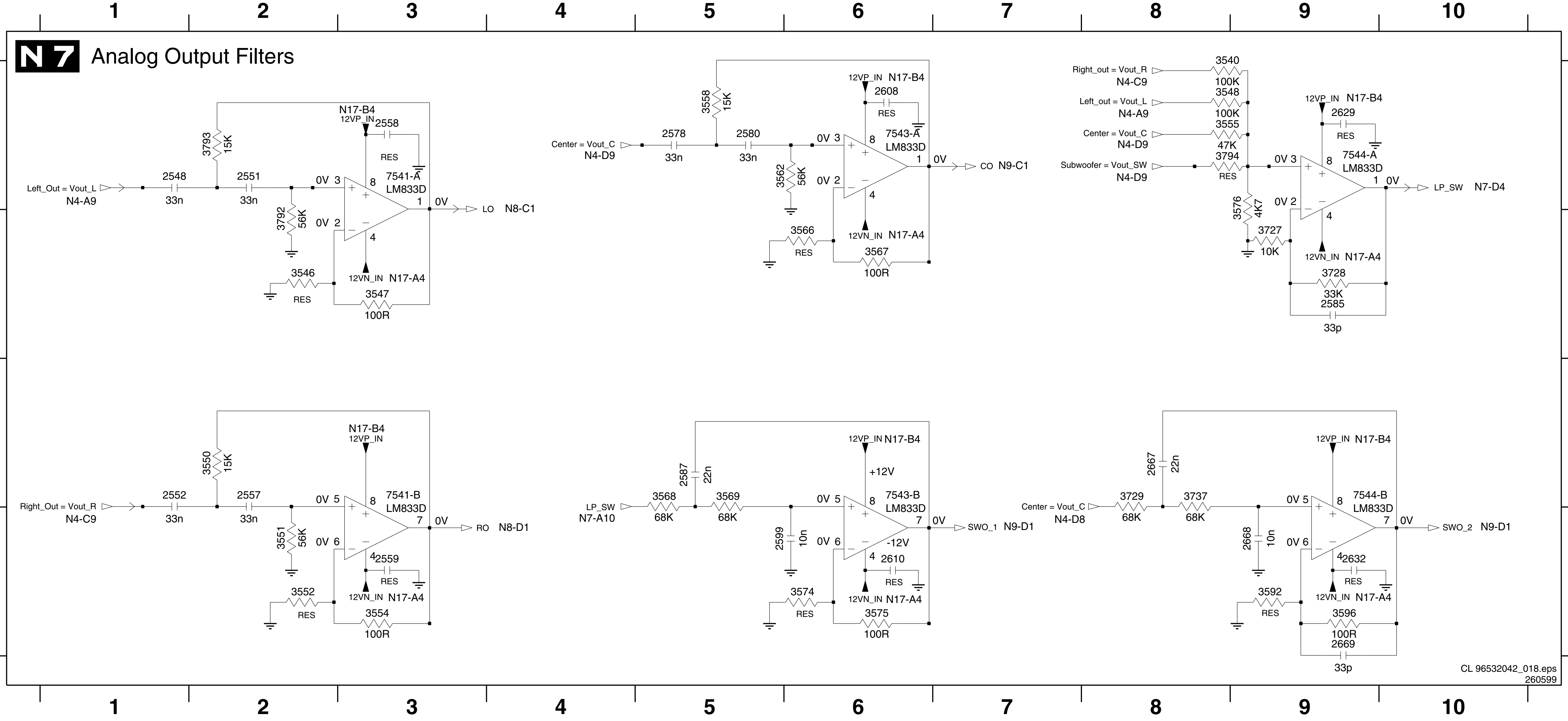
Multi-Channel Sound Module: Analog Input and Downmix

0373 D9	2505 A8	2512 D6	2524 C1	2537 D4	3501 B6	3506 A9	3511 B8	3516 A9	3521 D2	3526 C1	3533 C7	3538 D4	3549 C6	3579 E5	4500 E8	4520 C3	4529 D8	7512 C9	7713 E8
0381 A6	2506 C8	2520 C2	2525 E1	2538 E4	3502 A7	3507 C8	3512 D6	3517 B9	3522 E1	3527 D1	3534 B6	3539 D3	3570 E6	3598 D4	4501 E8	4522 E3	6525 E8	7520-A C2	
2500 A6	2507 B8	2521 E2	2534 C7	2539 A9	3503 C7	3508 C9	3513 C7	3518 C9	3523 E2	3530 A7	3535 C4	3542 E4	3572 D4	3599 E4	4505 A8	4526 B4	7505-A A8	7520-B D2	
2501 C6	2508 D8	2522 D2	2535 C4	2793 C9	3504 B6	3509 B7	3514 C8	3519 D5	3524 C1	3531 A7	3536 C3	3544 A9	3577 D8	3600 E4	4506 B8	4527 E3	7505-B B8	7535-A C4	
2504 B6	2511 E6	2523 E2	2536 E4	3500 A6	3505 A8	3510 B7	3515 A9	3520 C1	3525 D1	3532 B7	3537 C4	3545 B9	3578 D8	3799 E7	4507 B6	4528 D7	7510 A9	7535-B D4	

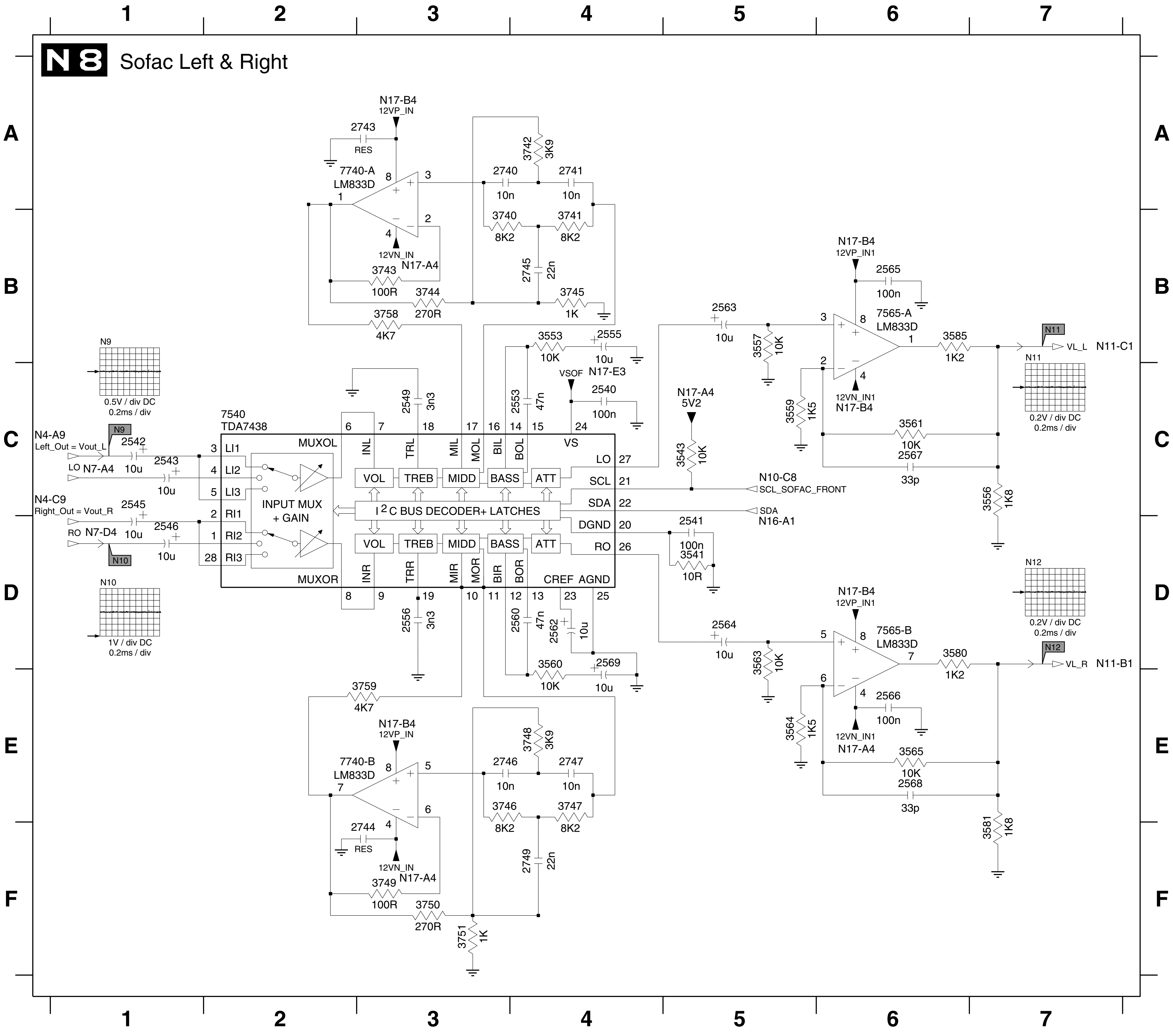

1 2 3 4 5 6 7 8 9
A B C D E
N6 Analog Input & Downmix
N1 0.2V / div DC 0.2ms / div
N2 0.2V / div DC 0.2ms / div
N3 0.2V / div DC 0.2ms / div
N4 1V / div DC 0.5ms / div
N5 0.2V / div DC 0.2ms / div
N6 0.2V / div DC 0.2ms / div
FROM Ø381 OF K2
0381
CL-R
GND_REF381
CL-L
3500 3K9
2500 390p
3502 RES
3530 6K8
3531 10K
4505 RES
12VP_IN1
2505 100n
7505-A LM833D
12VN_IN1 N17-A4
3504 120R
4507 RES
2504 10n
3509 RES
3510 10K
3511 10K
2507 33p
3534 120R
3501 3K9
2501 390p
3503 RES
3532 6K8
3533 10K
4506 RES
7505-B LM833D
2506 100n
3513 10K
3514 10K
2508 33p
3549 RES
2534 10n
3544 RES
N17-A4 12VP_IN
3515 5K6
6V5
CRt N12-D1
3505 10K
3506 10K
2539 270p
7510 BC847B
0V
0V7
3516 12K
12VN_IN N17-A4
N5-C9
Rigth_In = Vin_R_UDA
3545 RES
3517 5K6
6V6
CLt N12-C1
3507 10K
3508 10K
2793 270p
7512 BC847B
3518 12K
N5-C2
Left_In = Vin_L_UDA
TO Ø373 OF K8
0373
SNDR-UI-IN
SNDL-UI-IN
GND_REF373
REQUEST
SDA-S
SCL-S
Vout_R_UDA = Right_Downmix N5-E8
3526 22K
3524 22K
2524 680p
3520 10K
12VP_IN N17-B4
2520 RES
7520-A LM833D
12VN_IN N17-A4
3521 33K
2522 33p
CDMRt N12-C1
4520
4526 RES
3535 22K
3536 22K
3537 22K
2535 RES
7535-A LM833D
3572 15K
3598 10K
2537 33p
Vout_L_UDA = Left_Downmix N5-E2
3527 22K
3525 22K
2525 680p
3522 10K
7520-B LM833D
2521 RES
3523 33K
2523 33p
CDMLt N12-B1
4522
4527 RES
3538 22K
3539 22K
3542 22K
7535-B LM833D
2536 RES
3599 15K
3600 10K
2538 33p
3512 120R
3519 27K
2512 33n
4528 RES
3570 120R
3579 27K
2511 33n
3799 22K
4529
3578 100R
REQUEST = I0COMREQ N3-D3
3577 47K
7713 BC847B
SDA N16-E4
SCL N16-E4
5V0
4500 RES
4501 RES
6525 PLVA2656A
N7 N8
CL 96532042_017.eps 211201

Multi-Channel Sound Module: Analog Output Filters

2548 A1	2557 C2	2578 A5	2587 C5	2610 D6	2667 C8	3540 A8	3548 A8	3552 D2	3558 A5	3567 B6	3574 D6	3592 D9	3728 B9	3792 B2	7541-A A3	7543-B C6
2551 A2	2558 A3	2580 A5	2599 D5	2629 A9	2668 D9	3546 B2	3550 C2	3554 D3	3562 A5	3568 C5	3575 D6	3596 D9	3729 C8	3793 A2	7541-B C3	7544-A A9
2552 C1	2559 D3	2585 B9	2608 A6	2632 D9	2669 D9	3547 B3	3551 D2	3555 A8	3566 B6	3569 C5	3576 A9	3727 B9	3737 C8	3794 A8	7543-A A6	7544-B C9

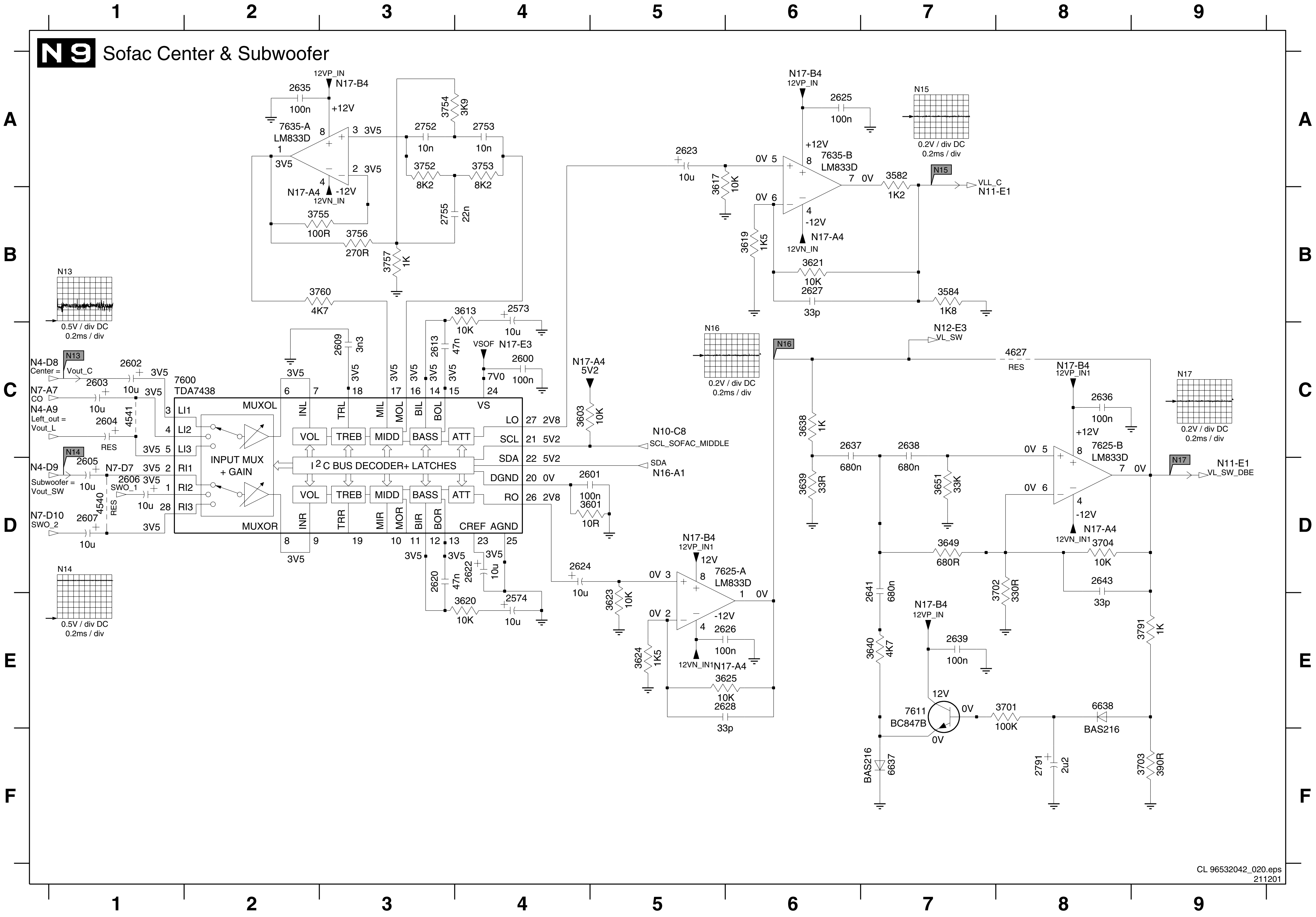

N7 Analog Output Filters
1 2 3 4 5 6 7 8 9 10
A B C D
Left_Out = Vout_L
N4-A9
2548 33n
2551 33n
3793 15K
3792 56K
N17-B4 12VP_IN
2558 RES
7541-A LM833D
0V 3
0V 2
8 4 1
0V
LO N8-C1
3546 RES
3547 100R
12VN_IN N17-A4
Center = Vout_C
N4-D9
2578 33n
2580 33n
3558 15K
3562 56K
12VP_IN N17-B4
2608 RES
7543-A LM833D
CO N9-C1
3566 RES
3567 100R
Right_out = Vout_R
N4-C9
3540 100K
Left_out = Vout_L
N4-A9
3548 100K
Center = Vout_C
N4-D9
3555 47K
Subwoofer = Vout_SW
N4-D9
3794 RES
3576 4K7
3727 10K
2629 RES
7544-A LM833D
LP_SW N7-D4
3728 33K
2585 33p
Right_Out = Vout_R
N4-C9
2552 33n
2557 33n
3550 15K
3551 56K
7541-B LM833D
0V 5
0V 6
7
RO N8-D1
2559 RES
3552 RES
3554 100R
LP_SW
N7-A10
3568 68K
3569 68K
2587 22n
2599 10n
+12V
-12V
7543-B LM833D
2610 RES
SWO_1 N9-D1
3574 RES
3575 100R
Center = Vout_C
N4-D8
3729 68K
3737 68K
2667 22n
2668 10n
7544-B LM833D
2632 RES
SWO_2 N9-D1
3592 RES
3596 100R
2669 33p
CL 96532042_018.eps
260599

Multi-Channel Sound Module: Sofac Left and Right


N8
Sofac Left & Right
1 2 3 4 5 6 7
A B C D E F
7540
TDA7438
MUXOL
MUXOR
INPUT MUX
+ GAIN
I2C BUS DECODER+ LATCHES
VOL TREB MIDD BASS ATT
LI1 LI2 LI3 RI1 RI2 RI3
INL TRL MIL MOL BIL BOL VS
INR TRR MIR MOR BIR BOR CREF AGND
LO SCL SDA DGND RO
7740-A
LM833D
7740-B
LM833D
7565-A
LM833D
7565-B
LM833D
N17-B4
12VP_IN
12VN_IN
N17-A4
12VP_IN1
12VN_IN1
N17-E3
VSOF
N17-A4
5V2
N4-A9
Left_Out = Vout_L
LO N7-A4
N4-C9
Right_Out = Vout_R
RO N7-D4
N10-C8
SCL_SOFAC_FRONT
SDA
N16-A1
VL_L N11-C1
VL_R N11-B1
N9
0.5V / div DC
0.2ms / div
N10
1V / div DC
0.2ms / div
N11
0.2V / div DC
0.2ms / div
N12
0.2V / div DC
0.2ms / div
2743 RES
2740 10n
2741 10n
3742 3K9
3740 8K2
3741 8K2
2745 22n
3743 100R
3744 270R
3745 1K
3758 4K7
3553 10K
2555 10u
2549 3n3
2553 47n
2540 100n
2542 10u
2543 10u
2545 10u
2546 10u
3543 10K
2541 100n
3541 10R
2556 3n3
2560 47n
2562 10u
3560 10K
2569 10u
3759 4K7
3748 3K9
2746 10n
2747 10n
3746 8K2
3747 8K2
2749 22n
2744 RES
3749 100R
3750 270R
3751 1K
2563 10u
3557 10K
2565 100n
3559 1K5
3561 10K
2567 33p
3585 1K2
3556 1K8
2564 10u
3563 10K
2566 100n
3564 1K5
3565 10K
2568 33p
3580 1K2
3581 1K8

2540	C4
2541	D5
2542	C1
2543	C1
2545	C1
2546	D1
2549	C3
2553	C4
2555	B4
2556	D3
2560	D4
2562	D4
2563	B5
2564	D5
2565	B6
2566	E6
2567	C6
2568	E6
2569	D4
2740	A3
2741	A4
2743	A3
2744	F3
2745	B4
2746	E3
2747	E4
2749	F4
3541	D5
3543	C5
3553	B4
3556	C7
3557	B5
3559	C5
3560	D4
3561	C6
3563	D5
3564	E5
3565	E6
3580	D6
3581	F7
3585	B6
3740	B3
3741	B4
3742	A4
3743	B3
3744	B3
3745	B4
3746	E3
3747	E4
3748	E4
3749	F3
3750	F3
3751	F3
3758	B3
3759	E3
7540	C2
7565-A	B6
7565-B	D6
7740-A	A3
7740-B	E3

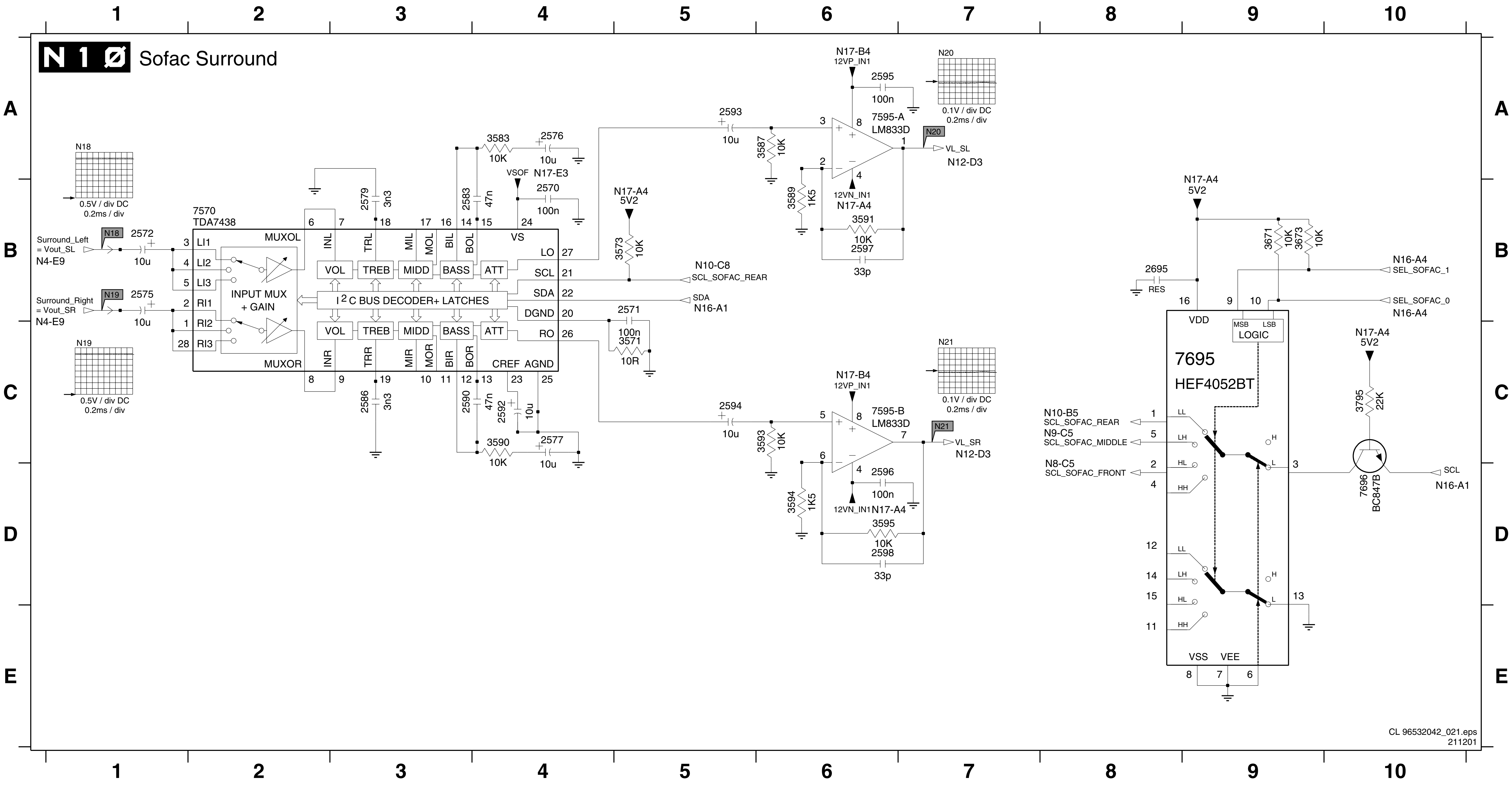
Multi-Channel Sound Module: Sofac Center and Subwoofer


N9 Sofac Center & Subwoofer
1 2 3 4 5 6 7 8 9
A B C D E F
7600 TDA7438
MUXOL
MUXOR
INPUT MUX + GAIN
I2C BUS DECODER+ LATCHES
VOL TREB MIDD BASS ATT
LI1 LI2 LI3 RI1 RI2 RI3
LO SCL SDA DGND RO
CREF AGND
VS
7635-A LM833D
7635-B LM833D
7625-A LM833D
7625-B LM833D
7611 BC847B
BAS216
N4-D8 Center = Vout_C
N7-A7 CO
N4-A9 Left_out = Vout_L
N4-D9 Subwoofer = Vout_SW
N7-D10 SWO_2
N7-D7 SWO_1
N10-C8 SCL_SOFAC_MIDDLE
N16-A1 SDA
N11-E1 VLL_C
N12-E3 VL_SW
N11-E1 VL_SW_DBE
N17-B4 12VP_IN
N17-A4 12VN_IN
N17-E3 VSOF
N13
0.5V / div DC 0.2ms / div
N14
0.5V / div DC 0.2ms / div
N15
0.2V / div DC 0.2ms / div
N16
0.2V / div DC 0.2ms / div
N17
0.2V / div DC 0.2ms / div
CL 96532042_020.eps
211201

2573	B4
2574	E4
2600	C4
2601	D4
2602	C1
2603	C1
2604	C1
2605	D1
2606	D1
2607	D1
2609	C3
2613	C3
2620	D3
2622	D4
2623	A5
2624	D4
2625	A6
2626	E5
2627	B6
2628	E5
2635	A2
2636	C8
2637	C6
2638	C7
2639	E7
2641	D7
2643	D8
2752	A3
2753	A4
2755	B3
2791	F8
3582	A7
3584	B7
3601	D5
3603	C4
3613	B4
3617	A5
3619	B6
3620	E4
3621	B6
3623	E5
3624	E5
3625	E6
3638	C6
3639	D6
3640	E7
3649	D7
3651	D7
3701	E8
3702	D8
3703	F9
3704	D8
3752	A3
3753	A4
3754	A3
3755	B2
3756	B3
3757	B3
3760	B3
3791	E9
4540	D1
4541	C1
4627	C8
6637	F7
6638	E8
7600	C1
7611	E7
7625-A	D5
7625-B	C8
7635-A	A2
7635-B	A6

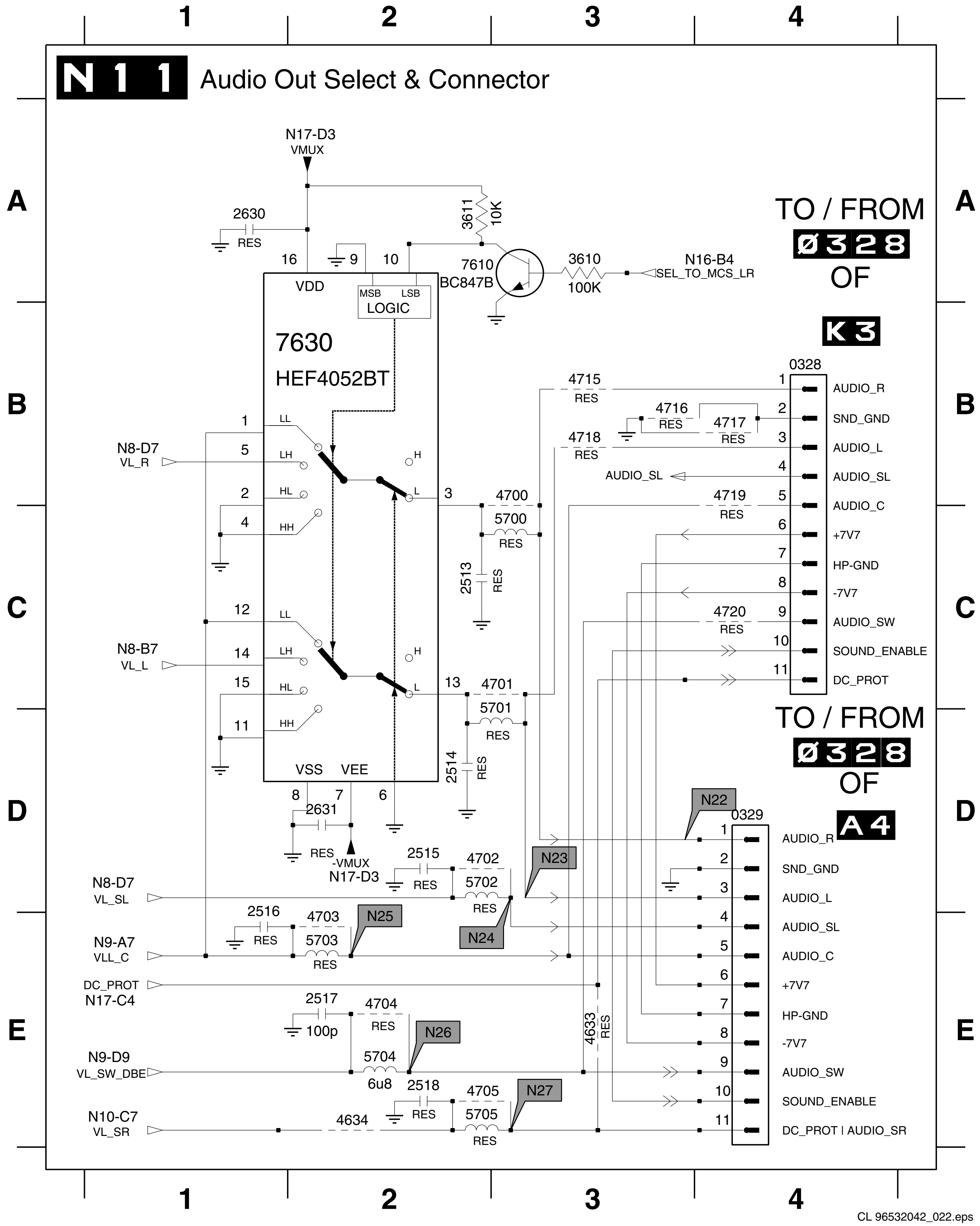
Multi-Channel Sound Module: Sofac Surround

2570 B4	2572 B1	2576 A4	2579 B3	2586 C3	2592 C4	2594 C5	2596 D6	2598 D6	3571 C5	3583 A4	3589 B6	3591 B6	3594 D6	3671 B9	3795 C10	7595-A A6	7695 C8
2571 B5	2575 B1	2577 C4	2583 B3	2590 C3	2593 A5	2595 A6	2597 B6	2695 B8	3573 B5	3587 A6	3590 C4	3593 C6	3595 D6	3673 B9	7570 B2	7595-B C6	7696 D10


N 1 0 Sofac Surround
1 2 3 4 5 6 7 8 9 10
A B C D E
N18
0.5V / div DC
0.2ms / div
N19
0.5V / div DC
0.2ms / div
Surround_Left = Vout_SL
N4-E9
2572 10u
Surround_Right = Vout_SR
N4-E9
2575 10u
7570
TDA7438
MUXOL
MUXOR
INPUT MUX + GAIN
LI1 LI2 LI3 RI1 RI2 RI3
INL TRL MIL MOL BIL BOL VS
INR TRR MIR MOR BIR BOR CREF AGND
VOL TREB MIDD BASS ATT
I2C BUS DECODER+ LATCHES
LO SCL SDA DGND RO
2579 3n3
2583 47n
3583 10K
2576 10u
VSOF N17-E3
2570 100n
2586 3n3
2590 47n
2592 10u
3590 10K
2577 10u
N17-A4 5V2
3573 10K
N10-C8
SCL_SOFAC_REAR
SDA
N16-A1
2571 100n
3571 10R
2593 10u
3587 10K
3589 1K5
N17-B4 12VP_IN1
2595 100n
7595-A LM833D
12VN_IN1 N17-A4
3591 10K
2597 33p
N20
0.1V / div DC
0.2ms / div
VL_SL
N12-D3
2594 10u
3593 10K
3594 1K5
7595-B LM833D
2596 100n
3595 10K
2598 33p
N21
0.1V / div DC
0.2ms / div
VL_SR
N12-D3
N17-A4 5V2
3671 10K
3673 10K
2695 RES
N16-A4 SEL_SOFAC_1
SEL_SOFAC_0 N16-A4
7695
HEF4052BT
VDD
MSB LSB LOGIC
VSS VEE
N10-B5 SCL_SOFAC_REAR
N9-C5 SCL_SOFAC_MIDDLE
N8-C5 SCL_SOFAC_FRONT
LL LH HL HH H L
N17-A4 5V2
3795 22K
7696 BC847B
SCL
N16-A1
CL 96532042_021.eps
211201

Multi-Channel Sound Module: Audio Out Select and Connector

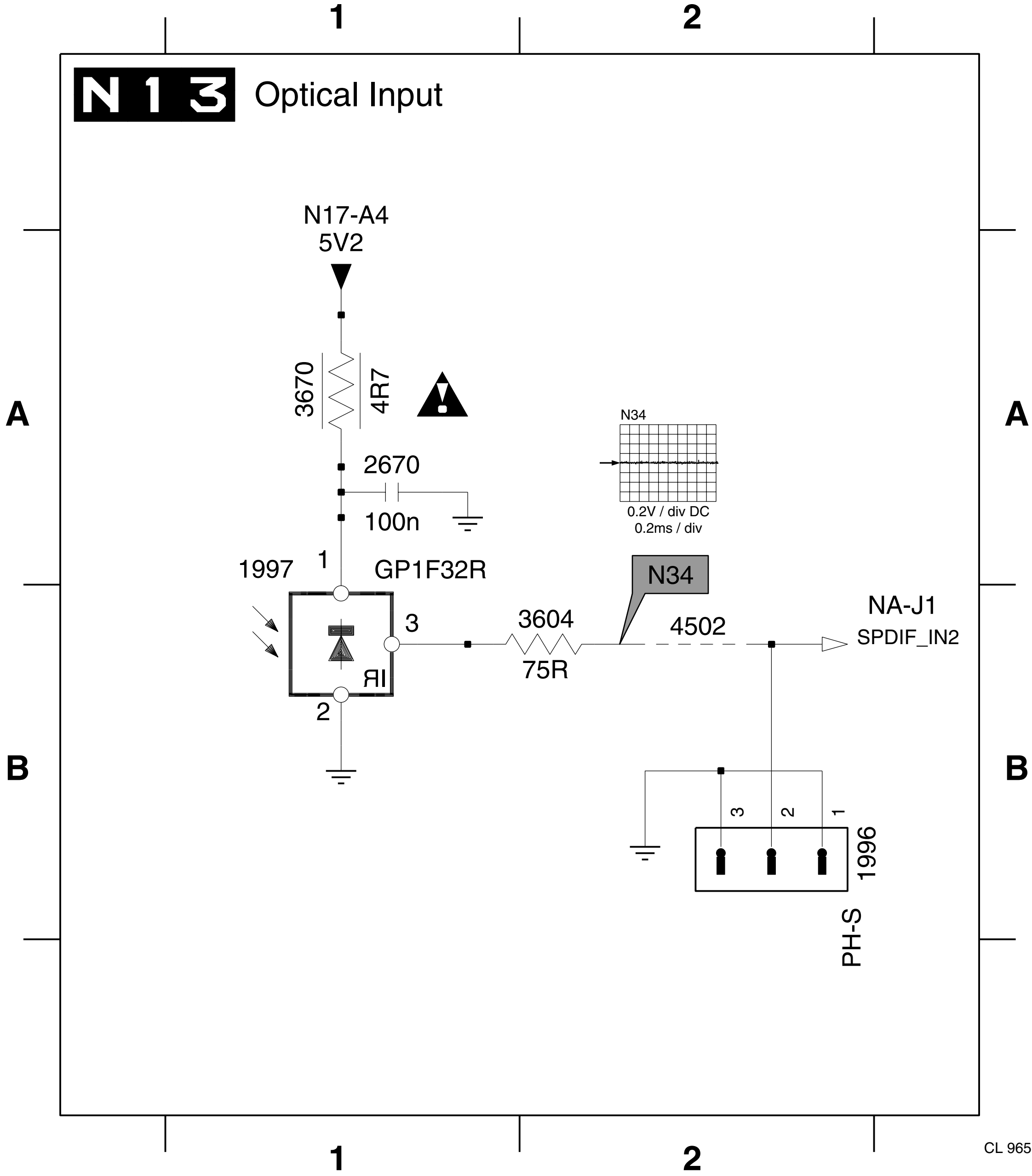
0328 B4
0329 D4
2513 C2
2514 D2
2515 D2
2516 E1
2517 E2
2518 E2
2630 A1
2631 D2
3610 A3
3611 A2
4633 E3
4634 E2
4700 B3
4701 C3
4702 D2
4703 E2
4704 E2
4705 E2
4715 B3
4716 B3
4717 B4
4718 B3
4719 B4
4720 C4
5700 C3
5701 D3
5702 D2
5703 E2
5704 E2
5705 E2
7610 A3
7630 B1


N11
Audio Out Select & Connector
1
2
3
4
A
B
C
D
E
N17-D3
VMUX
2630
RES
3611
10K
16
9
10
7610
BC847B
3610
100K
N16-B4
SEL_TO_MCS_LR
VDD
MSB
LSB
LOGIC
7630
HEF4052BT
TO / FROM
0328
OF
K3
0328
4715
RES
4716
RES
4717
RES
4718
RES
AUDIO_SL
4700
5700
RES
4719
RES
2513
RES
4720
RES
1
2
3
4
5
6
7
8
9
10
11
AUDIO_R
SND_GND
AUDIO_L
AUDIO_SL
AUDIO_C
+7V7
HP-GND
-7V7
AUDIO_SW
SOUND_ENABLE
DC_PROT
N8-D7
VL_R
LL
LH
HL
HH
H
L
12
14
15
11
13
N8-B7
VL_L
4701
5701
RES
2514
RES
VSS
VEE
8
7
6
2631
RES
-VMUX
N17-D3
TO / FROM
0328
OF
A4
N22
0329
2515
RES
4702
5702
RES
N23
N8-D7
VL_SL
2516
RES
4703
5703
RES
N25
N24
N9-A7
VLL_C
DC_PROT
N17-C4
2517
100p
4704
RES
N26
4633
RES
N9-D9
VL_SW_DBE
5704
6u8
2518
RES
4705
5705
RES
N27
N10-C7
VL_SR
4634
AUDIO_R
SND_GND
AUDIO_L
AUDIO_SL
AUDIO_C
+7V7
HP-GND
-7V7
AUDIO_SW
SOUND_ENABLE
DC_PROT I AUDIO_SR

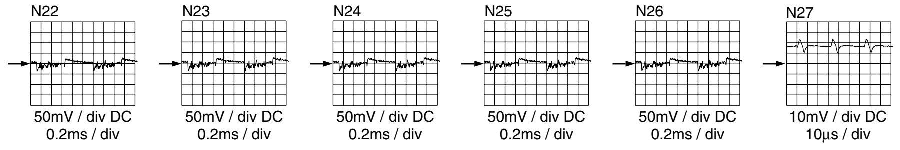
CL 96532042_022.eps
120599

Multi-Channel Sound Module: Optical Input

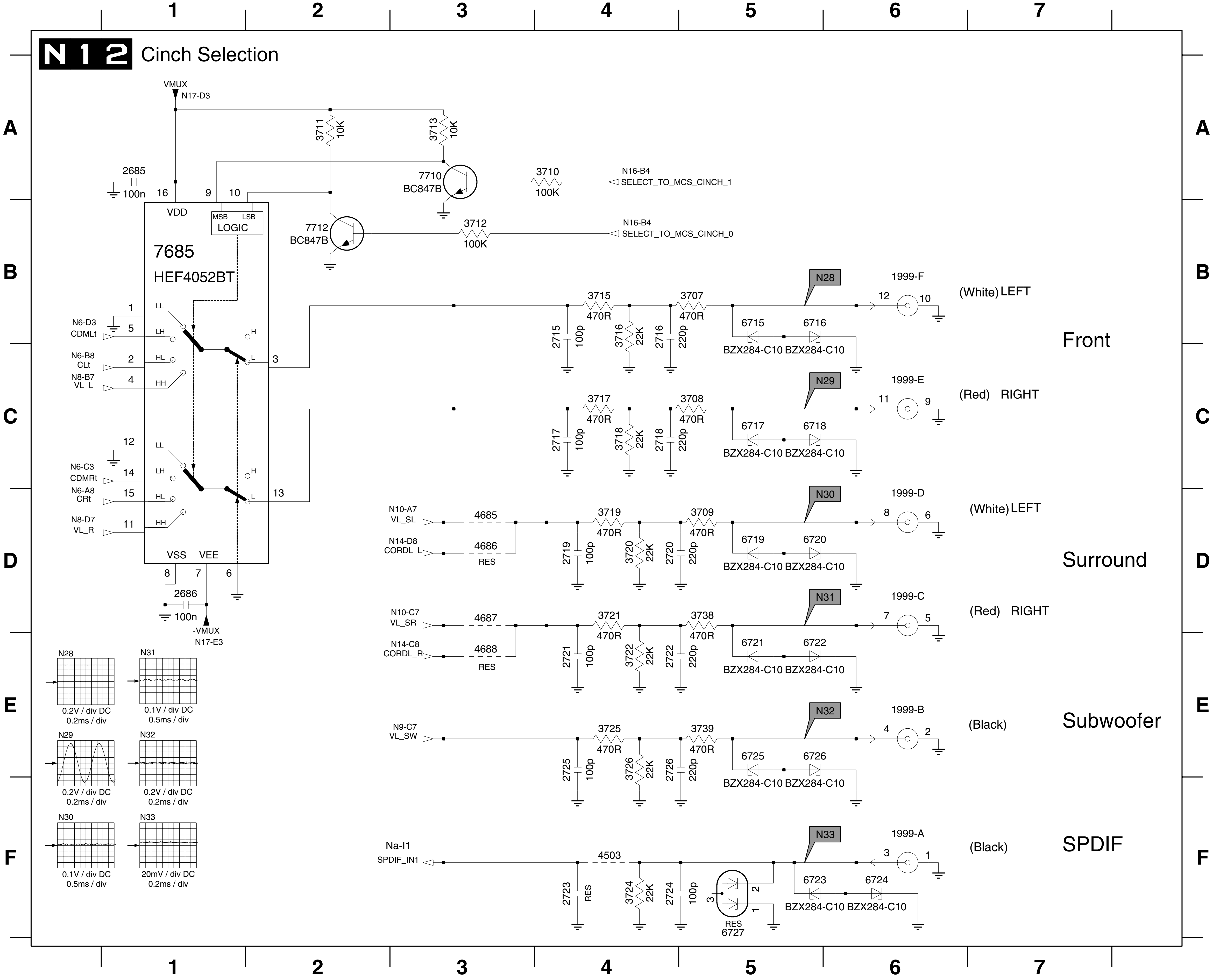
1996 B2
1997 A1
2670 A1
3604 B2
3670 A1
4502 B2


N13
Optical Input
1
2
A
B
N17-A4
5V2
3670
4R7
2670
100n
N34
0.2V / div DC
0.2ms / div
1997
GP1F32R
1
2
3
3604
75R
N34
4502
NA-J1
SPDIF_IN2
3
2
1
1996
PH-S

CL 96532042_024.eps
211201



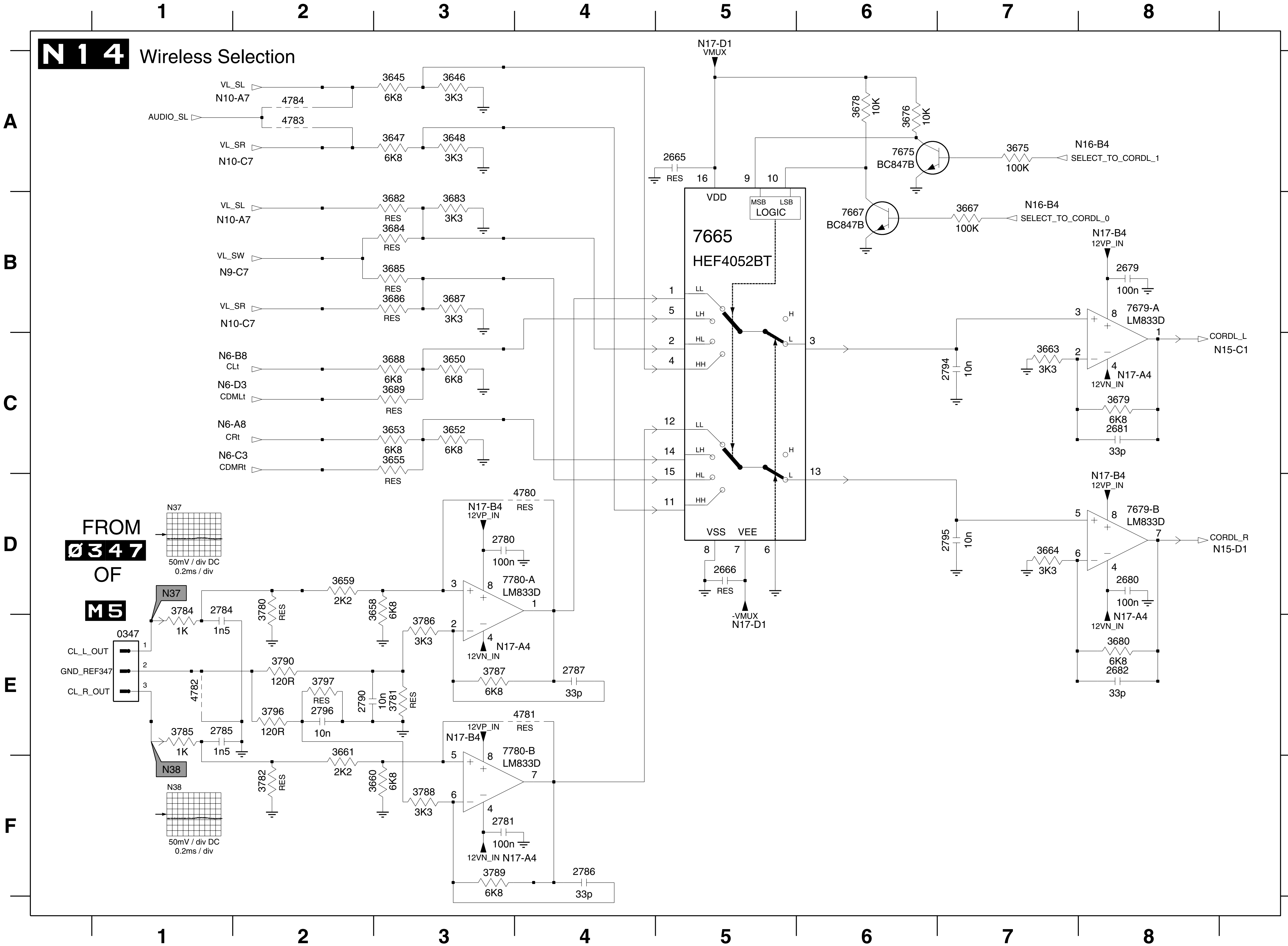
Multi-Channel Sound Module: Cinch Selection


N12 Cinch Selection
1 2 3 4 5 6 7
A B C D E F
VMUX
N17-D3
2685
100n
3711 10K
3713 10K
7710
BC847B
3710
100K
N16-B4
SELECT_TO_MCS_CINCH_1
7712
BC847B
3712
100K
N16-B4
SELECT_TO_MCS_CINCH_0
VDD
MSB LSB
LOGIC
7685
HEF4052BT
LL LH HL HH H L
N6-D3
CDMLt
N6-B8
CLt
N8-B7
VL_L
N6-C3
CDMRt
N6-A8
CRt
N8-D7
VL_R
VSS VEE
2686
100n
-VMUX
N17-E3
3715 470R
3707 470R
2715 100p
3716 22K
2716 220p
6715 6716
BZX284-C10 BZX284-C10
N28
1999-F
(White) LEFT
Front
3717 470R
3708 470R
2717 100p
3718 22K
2718 220p
6717 6718
N29
1999-E
(Red) RIGHT
N10-A7
VL_SL
N14-D8
CORDL_L
4685
4686
RES
3719 470R
3709 470R
2719 100p
3720 22K
2720 220p
6719 6720
N30
1999-D
(White) LEFT
Surround
N10-C7
VL_SR
N14-C8
CORDL_R
4687
4688
RES
3721 470R
3738 470R
2721 100p
3722 22K
2722 220p
6721 6722
N31
1999-C
(Red) RIGHT
N9-C7
VL_SW
3725 470R
3739 470R
2725 100p
3726 22K
2726 220p
6725 6726
N32
1999-B
(Black)
Subwoofer
Na-I1
SPDIF_IN1
4503
2723 RES
3724 22K
2724 100p
RES
6727
6723 6724
N33
1999-A
(Black)
SPDIF
N28 0.2V / div DC 0.2ms / div
N31 0.1V / div DC 0.5ms / div
N29 0.2V / div DC 0.2ms / div
N32 0.2V / div DC 0.2ms / div
N30 0.1V / div DC 0.5ms / div
N33 20mV / div DC 0.2ms / div

1999-A	F6
1999-B	E6
1999-C	D6
1999-D	D6
1999-E	C6
1999-F	B6
2685	A1
2686	D1
2715	B4
2716	B4
2717	C4
2718	C4
2719	D4
2720	D4
2721	E4
2722	E4
2723	F4
2724	F4
2725	E4
2726	E4
3707	B5
3708	C5
3709	D5
3710	A4
3711	A2
3712	B3
3713	A3
3715	B4
3716	B4
3717	C4
3718	C4
3719	D4
3720	D4
3721	D4
3722	E4
3724	F4
3725	E4
3726	E4
3738	D5
3739	E5
4503	F4
4685	D3
4686	D3
4687	D3
4688	E3
6715	B5
6716	B5
6717	C5
6718	C5
6719	D5
6720	D5
6721	E5
6722	E5
6723	F5
6724	F6
6725	E5
6726	E5
6727	F5
7685	B1
7710	A3
7712	B2

CL 96532042_023.eps
211201

Multi-Channel Sound Module: Wireless Selection

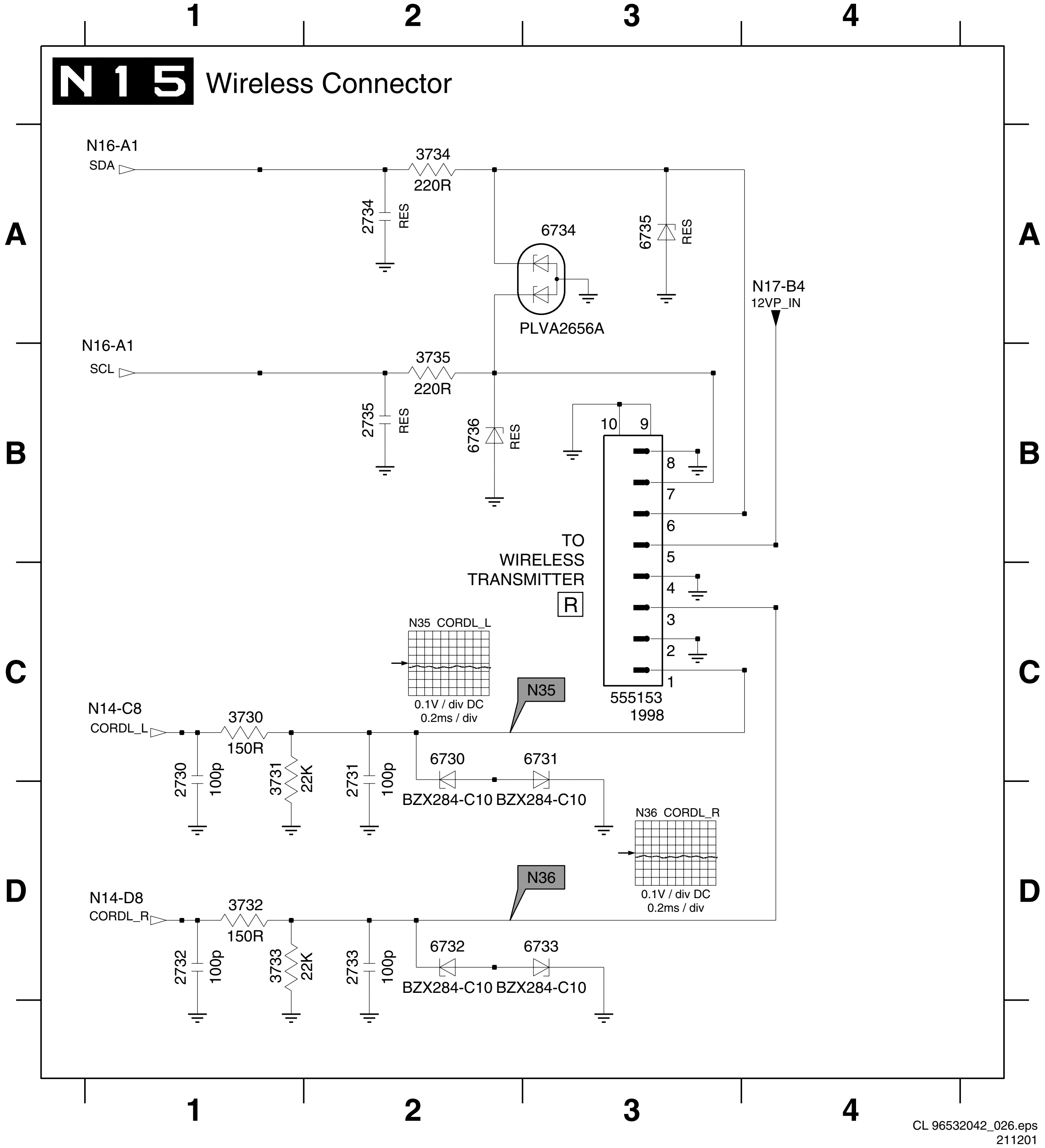

N14
Wireless Selection
1 2 3 4 5 6 7 8
A B C D E F
VL_SL
N10-A7
AUDIO_SL
4784
4783
VL_SR
N10-C7
3645 6K8
3646 3K3
3647 6K8
3648 3K3
VL_SL
N10-A7
3682 RES
3683 3K3
3684 RES
VL_SW
N9-C7
3685 RES
VL_SR
N10-C7
3686 RES
3687 3K3
N6-B8
CLt
3688 6K8
3650 6K8
N6-D3
CDMLt
3689 RES
N6-A8
CRt
3653 6K8
3652 6K8
N6-C3
CDMRt
3655 RES
N17-D1
VMUX
2665 RES
16 9 10
VDD
MSB LSB
LOGIC
7665
HEF4052BT
1 LL
5 LH
2 HL
4 HH
H
L
3
12 LL
14 LH
15 HL
11 HH
13
VSS VEE
8 7 6
2666 RES
-VMUX
N17-D1
3678 10K
3676 10K
7675 BC847B
3675 100K
N16-B4
SELECT_TO_CORDL_1
7667 BC847B
3667 100K
N16-B4
SELECT_TO_CORDL_0
N17-B4
12VP_IN
2679 100n
7679-A LM833D
3 8 2 1 4
3663 3K3
2794 10n
CORDL_L
N15-C1
N17-A4
12VN_IN
3679 6K8
2681 33p
N17-B4
12VP_IN
7679-B LM833D
5 8 6 7 4
2795 10n
3664 3K3
CORDL_R
N15-D1
2680 100n
N17-A4
12VN_IN
3680 6K8
2682 33p
FROM
0347
OF
M5
N37
50mV / div DC
0.2ms / div
N37
3784 1K
2784 1n5
3780 RES
3659 2K2
3658 6K8
4780 RES
N17-B4
12VP_IN
2780 100n
7780-A LM833D
3 8 2 1 4
3786 3K3
N17-A4
12VN_IN
3787 6K8
2787 33p
0347
CL_L_OUT
GND_REF347
CL_R_OUT
1 2 3
4782
3790 120R
3797 RES
2796 10n
3796 120R
2790 10n
3781 RES
3785 1K
2785 1n5
N38
3782 RES
3661 2K2
3660 6K8
4781 RES
12VP_IN
N17-B4
7780-B LM833D
5 8 6 7 4
3788 3K3
2781 100n
12VN_IN N17-A4
3789 6K8
2786 33p
N38
50mV / div DC
0.2ms / div

0347	E1
2665	A5
2666	D5
2679	B8
2680	D8
2681	C8
2682	E8
2780	D3
2781	F3
2784	D1
2785	E1
2786	F4
2787	E4
2790	E2
2794	C7
2795	D7
2796	E2
3645	A3
3646	A3
3647	A3
3648	A3
3650	C3
3652	C3
3653	C3
3655	C3
3658	D3
3659	D2
3660	F3
3661	E2
3663	C7
3664	D7
3667	B7
3675	A7
3676	A6
3678	A6
3679	C8
3680	E8
3682	B3
3683	B3
3684	B3
3685	B3
3686	B3
3687	B3
3688	C3
3689	C3
3780	D2
3781	E3
3782	F2
3784	D1
3785	E1
3786	E3
3787	E3
3788	F3
3789	F3
3790	E2
3796	E2
3797	E2
4780	D4
4781	E4
4782	E1
4783	A2
4784	A2
7665	B5
7667	B6
7675	A6
7679-A	B8
7679-B	D8
7780-A	D3
7780-B	E3

CL 96532042_025.eps
211201

Multi-Channel Sound Module: Wireless Connector

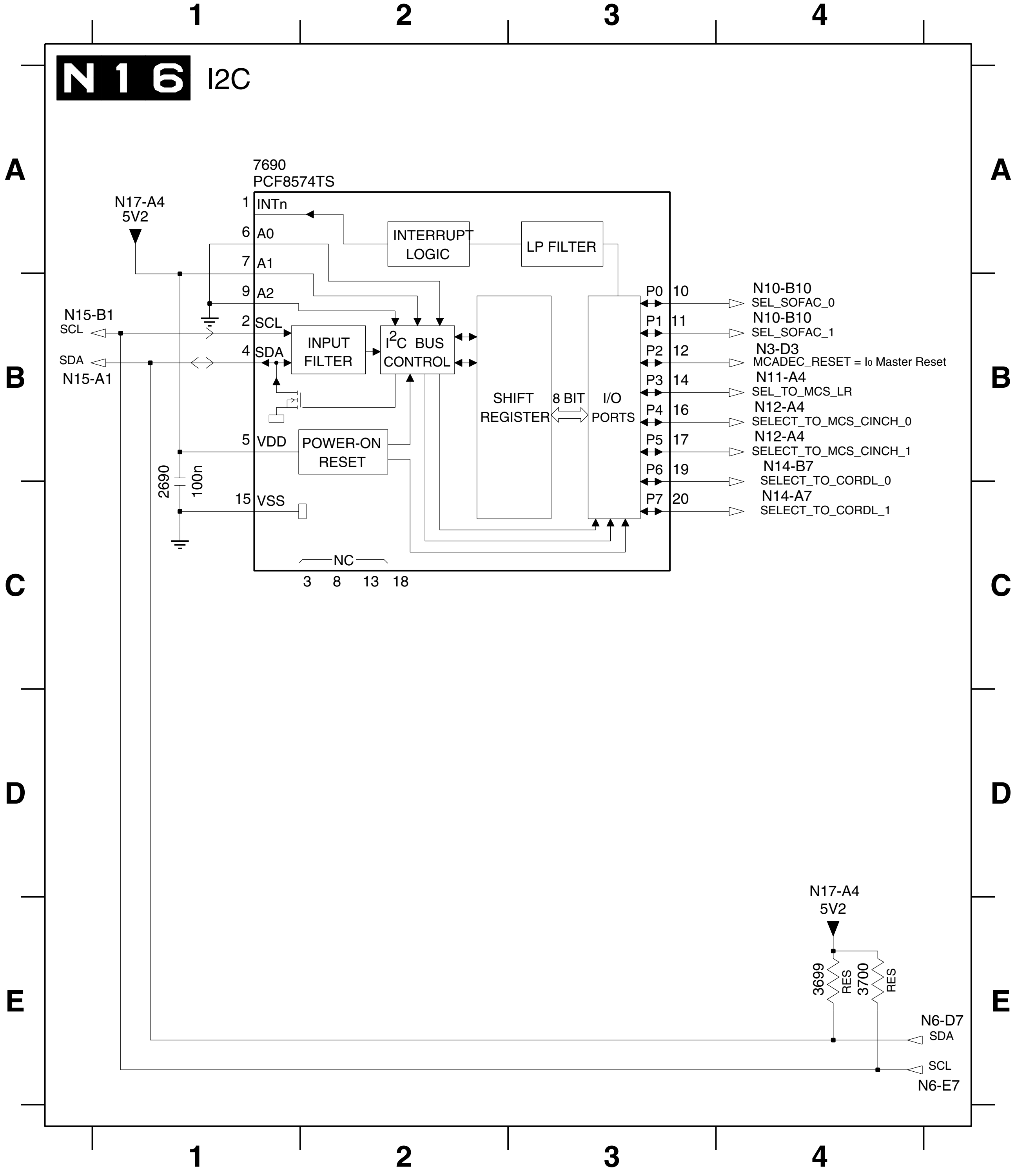
1998 C3	2731 C2	2733 D2	2735 B2	3731 C1	3733 D1	3735 B2	6731 C3	6733 D3	6735 A3
2730 C1	2732 D1	2734 A2	3730 C1	3732 D1	3734 A2	6730 C2	6732 D2	6734 A3	6736 B2


N15 Wireless Connector
1
2
3
4
A
B
C
D
N16-A1
SDA
3734
220R
2734
RES
6734
6735
RES
PLVA2656A
N17-B4
12VP_IN
N16-A1
SCL
3735
220R
2735
RES
6736
RES
10
9
8
7
6
5
4
3
2
1
TO
WIRELESS
TRANSMITTER
R
N35 CORDL_L
0.1V / div DC
0.2ms / div
N35
555153
1998
N14-C8
CORDL_L
3730
150R
2730
100p
3731
22K
2731
100p
6730
6731
BZX284-C10
BZX284-C10
N36 CORDL_R
0.1V / div DC
0.2ms / div
N36
N14-D8
CORDL_R
3732
150R
2732
100p
3733
22K
2733
100p
6732
6733
BZX284-C10
BZX284-C10

CL 96532042_026.eps
211201

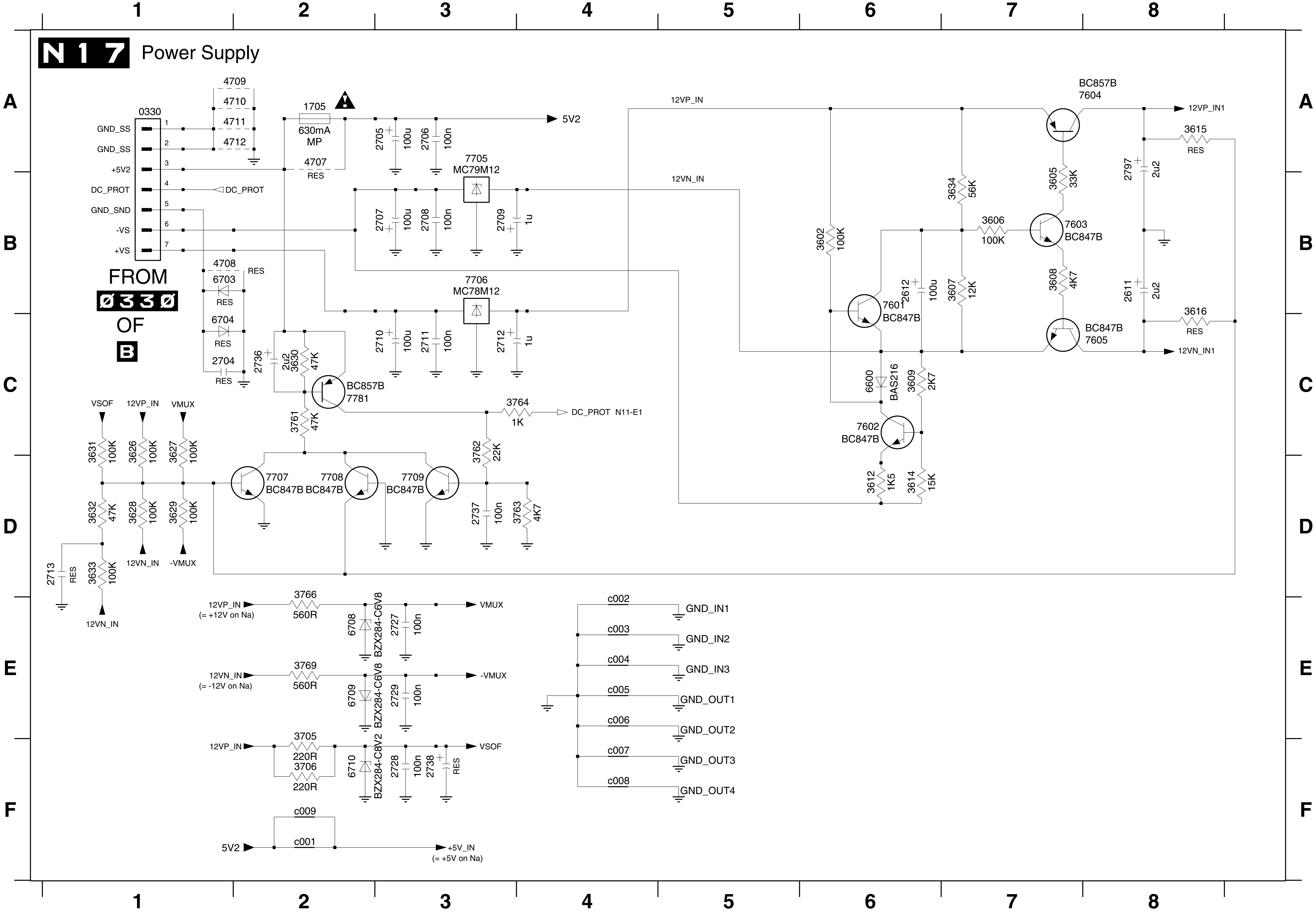
Multi-Channel Sound Module: I^{2}C

2690 B1	3699 E4	3700 E4	7690 A1


N16 I2C
1
2
3
4
A
B
C
D
E
7690
PCF8574TS
N17-A4
5V2
1 INTn
6 A0
7 A1
9 A2
2 SCL
4 SDA
5 VDD
15 VSS
INTERRUPT LOGIC
LP FILTER
INPUT FILTER
I2C BUS CONTROL
SHIFT REGISTER
8 BIT
I/O PORTS
POWER-ON RESET
NC
3 8 13 18
N15-B1
SCL
SDA
N15-A1
2690
100n
P0 10 N10-B10 SEL_SOFAC_0
P1 11 N10-B10 SEL_SOFAC_1
P2 12 N3-D3 MCADEC_RESET = I0 Master Reset
P3 14 N11-A4 SEL_TO_MCS_LR
P4 16 N12-A4 SELECT_TO_MCS_CINCH_0
P5 17 N12-A4 SELECT_TO_MCS_CINCH_1
P6 19 N14-B7 SELECT_TO_CORDL_0
P7 20 N14-A7 SELECT_TO_CORDL_1
N17-A4
5V2
3699
RES
3700
RES
N6-D7
SDA
SCL
N6-E7

CL 96532042_027.eps
180599

Multi-Channel Sound Module: Power Supply

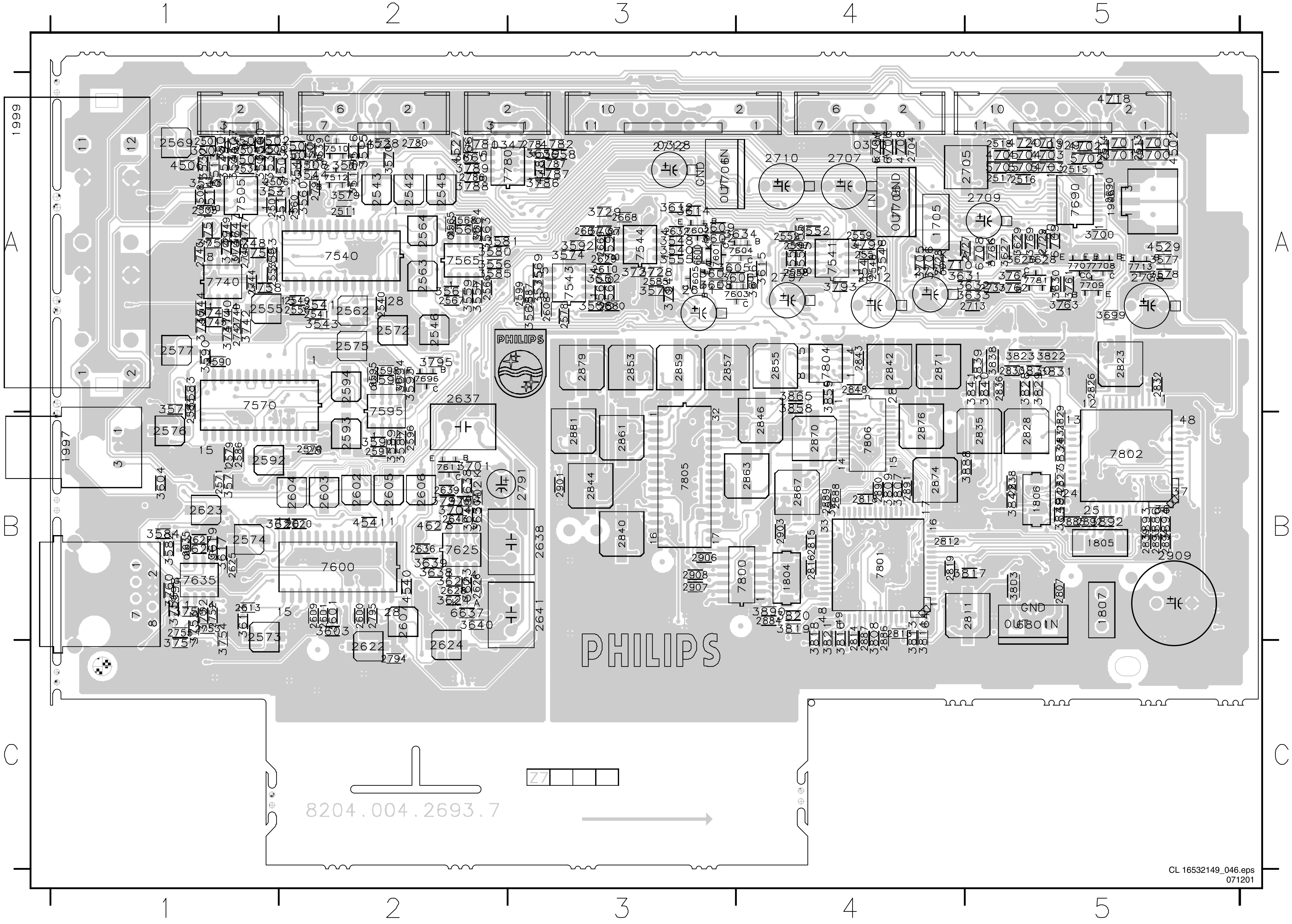

N17 Power Supply
1 2 3 4 5 6 7 8
A B C D E F
0330
GND_SS
GND_SS
+5V2
DC_PROT
GND_SND
-VS
+VS
FROM 0330 OF B
4709
4710
4711
4712
1705
630mA MP
4707 RES
5V2
2705 100u
2706 100n
7705 MC79M12
2707 100u
2708 100n
2709 1u
DC_PROT
4708 RES
6703 RES
6704 RES
2704 RES
7706 MC78M12
2710 100u
2711 100n
2712 1u
2736 2u2
3630 47K
BC857B 7781
3761 47K
3764 1K
DC_PROT N11-E1
3762 22K
VSOF
12VP_IN
VMUX
3631 100K
3626 100K
3627 100K
7707 BC847B
7708 BC847B
7709 BC847B
2737 100n
3763 4K7
3632 47K
3628 100K
3629 100K
12VN_IN
-VMUX
2713 RES
3633 100K
12VN_IN
12VP_IN
12VN_IN
BC857B 7604
12VP_IN1
3615 RES
2797 2u2
3634 56K
3605 33K
3606 100K
7603 BC847B
3602 100K
2612 100u
3607 12K
3608 4K7
2611 2u2
7601 BC847B
3616 RES
BC847B 7605
12VN_IN1
6600 BAS216
3609 2K7
7602 BC847B
3612 1K5
3614 15K
12VP_IN (= +12V on Na)
3766 560R
6708 BZX284-C6V8
2727 100n
VMUX
12VN_IN (= -12V on Na)
3769 560R
6709 BZX284-C6V8
2729 100n
-VMUX
12VP_IN
3705 220R
3706 220R
6710 BZX284-C8V2
2728 100n
2738 RES
VSOF
c009
c001
5V2
+5V_IN (= +5V on Na)
c002 GND_IN1
c003 GND_IN2
c004 GND_IN3
c005 GND_OUT1
c006 GND_OUT2
c007 GND_OUT3
c008 GND_OUT4

0330	A1
1705	A2
2611	B8
2612	B6
2704	C1
2705	A3
2706	A3
2707	B3
2708	B3
2709	B3
2710	C3
2711	C3
2712	C3
2713	D1
2727	E3
2728	F3
2729	E3
2736	C2
2737	D3
2738	F3
2797	A8
3602	B6
3605	B7
3606	B7
3607	B7
3608	B7
3609	C6
3612	D6
3614	D6
3615	A8
3616	C8
3626	C1
3627	C1
3628	D1
3629	D1
3630	C2
3631	C1
3632	D1
3633	D1
3634	B7
3705	F2
3706	F2
3761	C2
3762	C3
3763	D4
3764	C4
3766	E2
3769	E2
4707	A2
4708	B1
4709	A2
4710	A2
4711	A2
4712	A2
6600	C6
6703	B1
6704	C1
6708	E2
6709	E2
6710	F2
7601	B6
7602	C6
7603	B7
7604	A8
7605	C8
7705	A3
7706	B3
7707	D2
7708	D2
7709	D3
7781	C2
c001	F2
c002	E4
c003	E4
c004	E4
c005	E4
c006	E4
c007	F4
c008	F4
c009	F2

CL 96532042_028.eps
180599

Layout MCS Module (Inner Side)

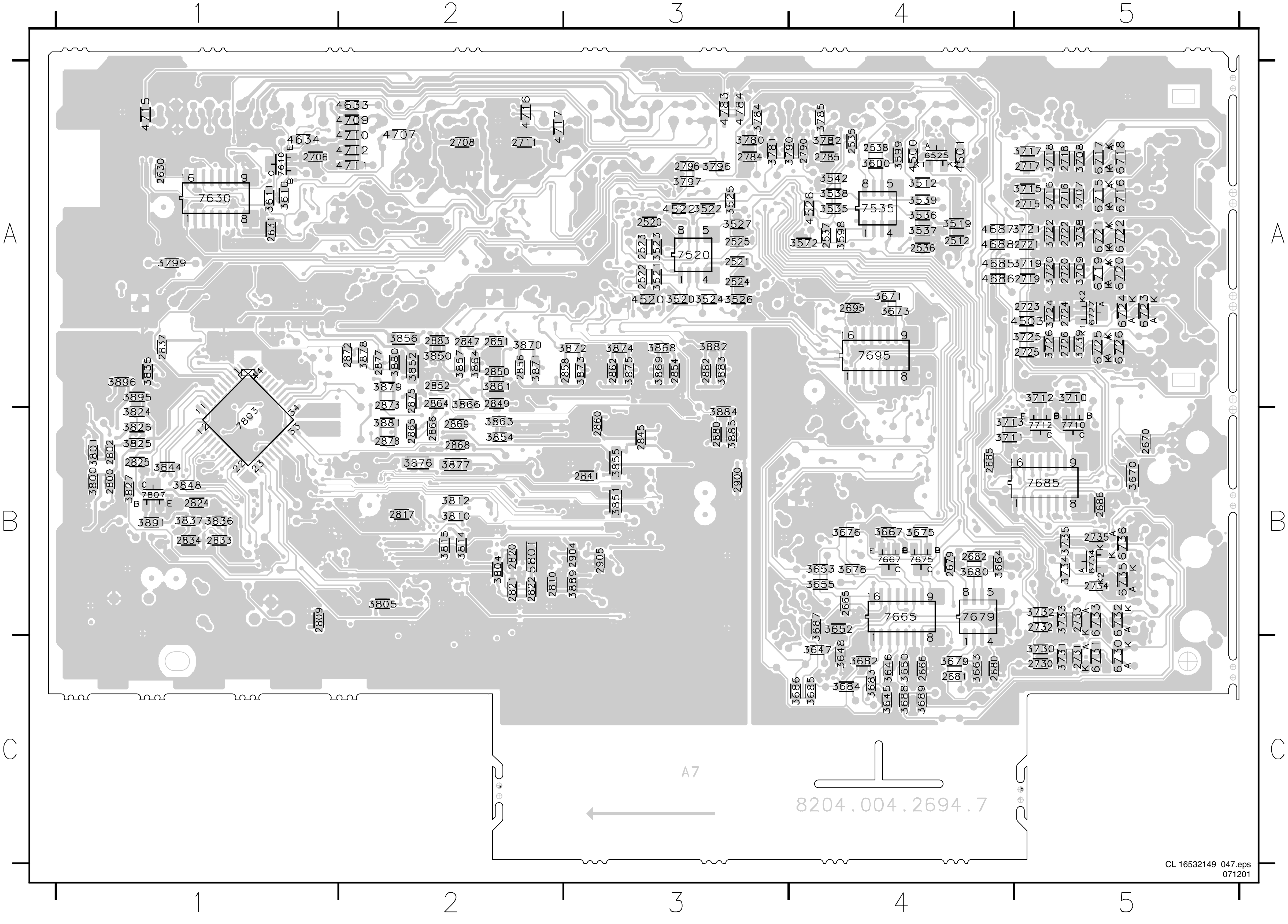
0328	A3
0329	A5
0330	A4
0347	A3
0373	A2
0381	A1
1705	A4
1804	B4
1805	B5
1806	B5
1807	B5
1996	A5
1997	B1
1998	B1
2500	A1
2501	A1
2504	A1
2505	A1
2506	A1
2507	A2
2508	A1
2511	A2
2513	A5
2514	A5
2515	A5
2516	A5
2517	A5
2518	A5
2534	A1
2539	A2
2540	A2
2541	A2
2542	A2
2543	A2
2545	A2
2546	A2
2548	A4
2549	A2
2551	A4
2552	A4
2553	A1
2555	A1
2556	A2
2557	A4
2558	A4
2559	A4
2560	A2
2562	A2
2563	A2
2564	A2
2565	A2
2566	A2
2567	A2
2568	A2
2569	A1
2570	B2
2571	B1
2572	A2
2573	B1
2574	B1
2575	A2
2576	B1
2577	A1
2578	A3
2579	B1
2580	A3
2583	A1
2585	A3
2586	B1
2587	A3
2590	A1
2592	B1
2593	B2
2594	A2
2595	A2
2596	B2
2597	B2
2598	A2
2599	A3
2600	B2
2601	B2
2602	B2
2603	B2
2604	B1
2605	B2
2606	B2
2607	B2
2608	A3
2609	B2
2610	A3
2611	A3
2612	A4
2613	B1
2620	B2
2622	B2
2623	B1
2624	B2
2625	B1
2626	B2
2627	B1
2628	B2
2629	A3
2632	A3
2635	B1
2636	B2
2637	A2
2638	B3
2639	B2
2641	B3
2643	B2
2667	A3
2668	A3
2669	A3
2690	A5
2704	A4
2705	A4
2707	A4
2709	A5
2710	A4
2712	A3
2713	A5
2727	A4
2728	A4
2729	A5
2736	A4
2737	A5
2738	A5
2740	A1
2741	A1
2743	A1
2744	A1
2745	A1
2746	A1
2747	A1
2749	A1
2752	B1
2753	B1
2755	B1
2780	A2
2781	A3
2786	A2
2787	A3
2791	B3
2793	A2
2794	C2
2795	B2
2797	A4
2807	B5
2811	C4
2812	B4
2813	C4
2814	C4
2815	B4
2816	B4
2818	B4
2819	B4
2823	A5
2826	A5
2827	B5
2828	B5
2829	A5
2830	A5
2831	B5
2832	A5
2835	B4
2836	A5
2838	B5
2839	B5
2840	B3
2842	A4
2843	A4
2844	B3
2846	A3
2848	A4
2853	A3
2855	A4
2857	A3
2859	A3
2861	A3
2863	B4
2867	B4
2870	B4
2871	A4
2874	B4
2876	B4
2879	A3
2881	A3
2884	B4
2885	B5
2886	C4
2887	C4
2888	B4
2889	B4
2890	B4
2891	B4
2892	B5
2893	B5
2894	B5
2901	B3
2903	B4
2906	B3
2907	B3
2908	B3
2909	B5
3500	A1
3501	A1
3502	A1
3503	A1
3504	A1
3505	A2
3506	A2
3507	A2
3508	A2
3509	A1
3510	A1
3511	A2
3513	A1
3514	A1
3515	A2
3516	A2
3517	A2
3518	A2
3530	A1
3531	A1
3532	A1
3533	A1
3534	A1
3540	A3
3541	A2
3543	A2
3544	A2
3545	A2
3546	A4
3547	A4
3548	A3
3549	A1
3550	A4
3551	A4
3552	A4
3553	A2
3554	A4
3555	A3
3556	A2
3557	A2
3558	A3
3559	A2
3560	A2
3561	A2
3562	A3
3563	A2
3564	A2
3565	A2
3566	A3
3567	A3
3568	A3
3569	A3
3570	A2
3571	B1
3573	B1
3574	A3
3575	A3
3576	A3
3577	A5
3578	A5
3579	A2
3580	A2
3581	A2
3582	B1
3583	A1
3584	B1
3585	A2
3587	B2
3589	B2
3590	A1
3591	B2
3592	A3
3593	A2
3594	A2
3595	A2
3596	A3
3601	B2
3602	A3
3603	C2
3604	B1
3605	A3
3606	A4
3607	A3
3608	A3
3609	A3
3612	A3
3613	B1
3614	A3
3615	A4
3616	A4
3617	B1
3619	B1
3620	B2
3621	B1
3623	B2
3624	B2
3625	B2
3626	A5
3627	A5
3628	A5
3629	A5
3630	A5
3631	A5
3632	A5
3633	A5
3634	A4
3638	B2
3639	B2
3640	B2
3649	B2
3651	B2
3658	A3
3659	A3
3660	A2
3661	A2
3699	A5
3700	A5
3701	B2
3702	B2
3703	B2
3704	B2
3705	A4
3706	A4
3727	A3
3728	A3
3729	A3
3737	A3
3740	A1
3741	A1
3742	A1
3743	A1
3744	A1
3745	A1
3746	A1
3747	A1
3748	A1
3749	A1
3750	A1
3751	A1
3752	B1
3753	B1
3754	B1
3755	B1
3756	B1
3757	C1
3758	A1
3759	A1
3760	B1
3761	A5
3762	A5
3763	A5
3764	A5
3766	A5
3769	A5
3786	A3
3787	A3
3788	A2
3789	A2
3791	B2
3792	A4
3793	A4
3794	A3
3795	A2
3803	B5
3807	B4
3808	C4
3809	B4
3811	C4
3813	C4
3816	C4
3817	B5
3818	C4
3819	C4
3820	B4
3821	C4
3822	A5
3823	A5
3828	A5
3829	A5
3830	A5
3831	A5
3834	B5
3838	A5
3839	A5
3840	A5
3841	A4
3842	B5
3843	B5
3849	B5
3858	A4
3859	A4
3865	A4
3886	B5
3888	B5
3890	B4
3892	B5
3893	B5
3894	B5
4502	A5
4505	A2
4506	A1
4507	A1
4527	A2
4528	A2
4529	A5
4540	B2
4541	B2
4627	B2
4700	A5
4701	A5
4702	A5
4703	A5
4704	A5
4705	A5
4708	A4
4718	A5
4719	A5
4720	A5
4780	A3
4781	A2
4782	A3
5700	A5
5701	A5
5702	A5
5703	A5
5704	A5
5705	A5
6600	A3
6637	B2
6638	B2
6703	A4
6704	A4
6708	A5
6709	A5
6710	A4
6801	C5
7505	A1
7510	A2
7512	A2
7540	A2
7541	A4
7543	A3
7544	A3
7565	A2
7570	B1
7595	A2
7600	B2
7601	A3
7602	A3
7603	A4
7604	A4
7605	A3
7611	B2
7625	B2
7635	B1
7690	A5
7696	A2
7705	A4
7706	A4
7707	A5
7708	A5
7709	A5
7713	A5
7740	A1
7780	A2
7781	A5
7800	B3
7801	B4
7802	A5
7804	A4
7805	A3
7806	B4



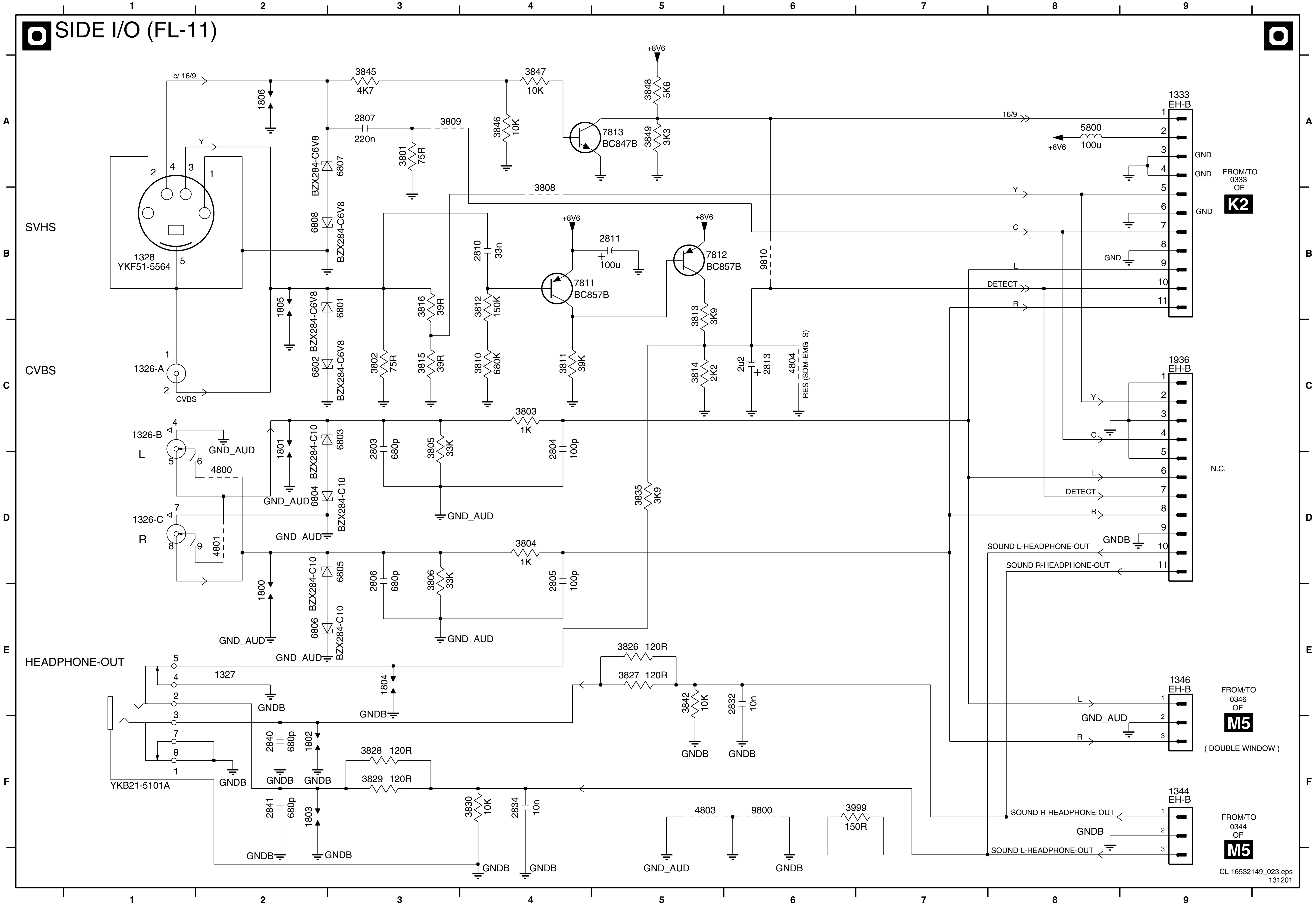
CL 16532149_046.eps
071201

Layout MCS Module (Outer Side)

2512	A4
2520	A3
2521	A3
2522	A3
2523	A3
2524	A3
2525	A3
2535	A4
2536	A4
2537	A4
2538	A4
2630	A1
2631	A1
2665	B4
2666	C4
2670	B5
2679	B4
2680	C4
2681	C4
2682	B4
2685	B4
2686	B5
2695	A4
2706	A1
2708	A2
2711	A2
2715	A5
2716	A5
2717	A5
2718	A5
2719	A5
2720	A5
2721	A5
2722	A5
2723	A5
2724	A5
2725	A5
2726	A5
2730	C5
2731	C5
2732	C5
2733	B5
2734	B5
2735	B5
2784	A3
2785	A4
2790	A4
2796	A3
2800	B1
2802	B1
2809	B1
2810	B2
2817	B2
2820	B2
2821	B2
2822	B2
2824	B1
2825	B1
2833	B1
2834	B1
2837	A1
2841	B3
2845	B3
2847	A2
2849	B2
2850	A2
2851	A2
2852	A2
2854	A3
2856	A2
2858	A2
2860	B3
2862	A3
2864	B2
2865	B2
2866	B2
2868	B2
2869	B2
2872	A1
2873	B2
2875	A2
2877	A2
2878	B2
2880	B3
2882	A3
2883	A2
2900	B3
2904	B3
2905	B3
3512	A4
3519	A4
3520	A3
3521	A3
3522	A3
3523	A3
3524	A3
3525	A3
3526	A3
3527	A3
3535	A4
3536	A4
3537	A4
3538	A4
3539	A4
3542	A4
3572	A4
3598	A4
3599	A4
3600	A4
3610	A1
3611	A1
3645	C4
3646	C4
3647	C4
3648	C4
3650	C4
3652	C4
3653	B4
3655	B4
3663	C4
3664	B4
3667	B4
3670	B5
3671	A4
3673	A4
3675	B4
3676	B4
3678	B4
3679	C4
3680	B4
3682	C4
3683	C4
3684	C4
3685	C4
3686	C4
3687	B4
3688	C4
3689	C4
3707	A5
3708	A5
3709	A5
3710	B5
3711	B4
3712	B5
3713	B4
3715	A5
3716	A5
3717	A5
3718	A5
3719	A5
3720	A5
3721	A5
3722	A5
3724	A5
3725	A5
3726	A5
3730	C5
3731	C5
3732	B5
3733	B5
3734	B5
3735	B5
3738	A5
3739	A5
3780	A3
3781	A3
3782	A4
3784	A3
3785	A4
3790	A4
3796	A3
3797	A3
3799	A1
3800	B1
3801	B1
3804	B2
3805	B2
3810	B2
3812	B2
3814	B2
3815	B2
3824	B1
3825	B1
3826	B1
3827	B1
3835	A1
3836	B1
3837	B1
3844	B1
3848	B1
3850	A2
3851	B3
3852	A2
3854	B2
3855	B3
3856	A2
3857	A2
3861	A2
3863	B2
3864	A2
3866	B2
3868	A3
3869	A3
3870	A2
3871	A2
3872	A3
3873	A3
3874	A3
3875	A3
3876	B2
3877	B2
3878	A2
3879	A2
3880	A2
3881	B2
3882	A3
3883	A3
3884	A3
3885	B3
3889	B3
3891	B1
3895	A1
3896	A1
4500	A4
4501	A4
4503	A5
4520	A3
4522	A3
4526	A4
4633	A2
4634	A1
4685	A4
4686	A4
4687	A4
4688	A4
4707	A2
4709	A2
4710	A2
4711	A2
4712	A2
4715	A1
4716	A2
4717	A2
4783	A3
4784	A3
5801	B2
6525	A4
6715	A5
6716	A5
6717	A5
6718	A5
6719	A5
6720	A5
6721	A5
6722	A5
6723	A5
6724	A5
6725	A5
6726	A5
6727	A5
6730	C5
6731	C5
6732	B5
6733	B5
6734	B5
6735	B5
6736	B5
7520	A3
7535	A4
7610	A1
7630	A1
7665	B4
7667	B4
7675	B4
7679	B4
7685	B5
7695	A4
7710	A5
7712	A5
7803	B1
7807	B1



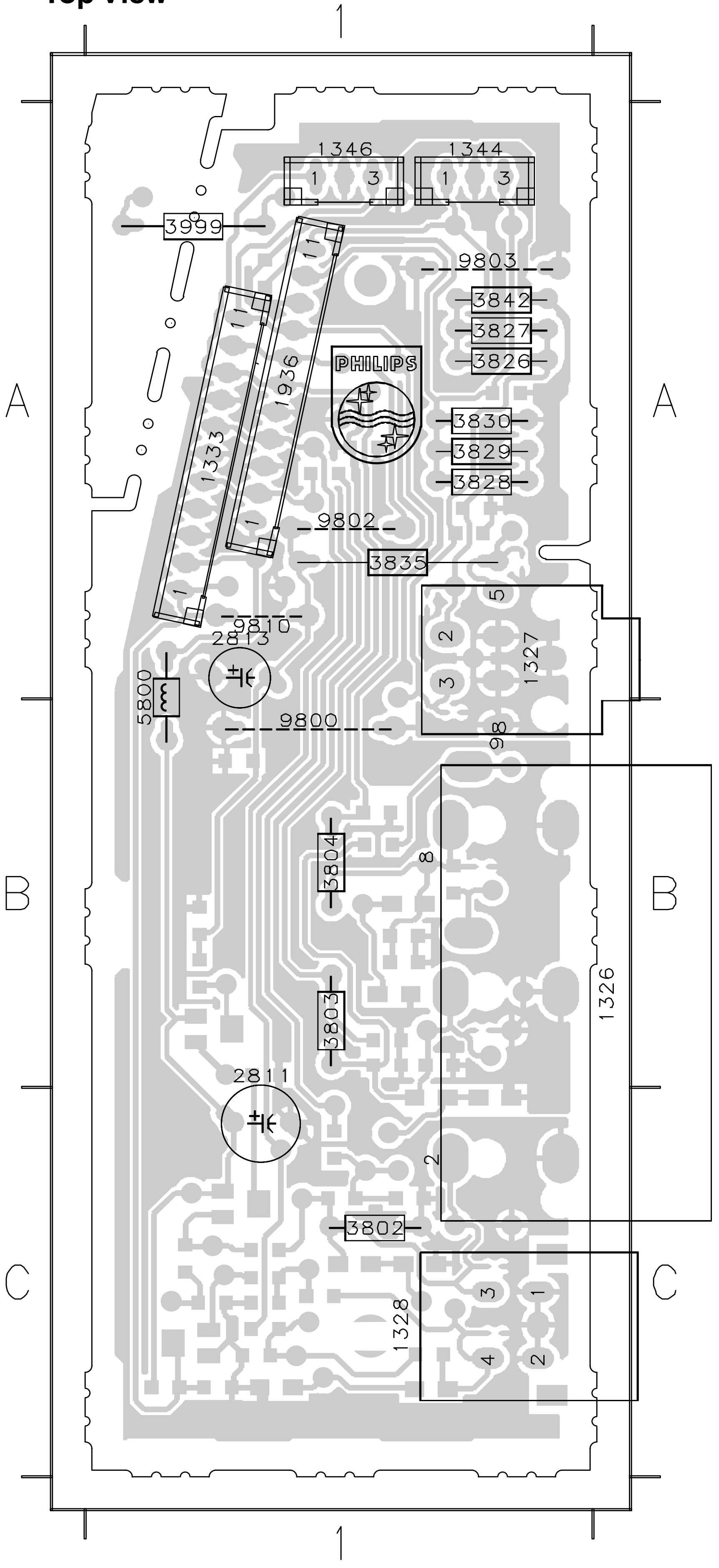
Side I/O Panel: FL11


SIDE I/O (FL-11)
1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
SVHS
CVBS
HEADPHONE-OUT
L
R
1328
YKF51-5564
1326-A
1326-B
1326-C
CVBS
Y
c/ 16/9
GND_AUD
GNDB
4800
4801
1327
YKB21-5101A
3845
4K7
3847
10K
+8V6
3848
5K6
3849
3K3
3846
10K
7813
BC847B
2807
220n
3809
3801
75R
1806
BZX284-C6V8
6807
6808
3808
2810
33n
2811
100u
7811
BC857B
7812
BC857B
9810
1805
6801
6802
3816
39R
3815
39R
3812
150K
3810
680K
3802
75R
3811
39K
3813
3K9
3814
2K2
2u2
2813
4804
RES (SDM-EMG_S)
3803
1K
1801
6803
6804
BZX284-C10
2803
680p
3805
33K
2804
100p
3835
3K9
3804
1K
1800
6805
6806
2806
680p
3806
33K
2805
100p
1804
3826
120R
3827
120R
3842
10K
2832
10n
2840
680p
1802
3828
120R
3829
120R
2841
680p
1803
3830
10K
2834
10n
4803
9800
3999
150R
1333
EH-B
16/9
5800
100u
GND
DETECT
C
FROM/TO
0333
OF
K2
1936
EH-B
N.C.
SOUND L-HEADPHONE-OUT
SOUND R-HEADPHONE-OUT
1346
EH-B
0346
M5
(DOUBLE WINDOW)
1344
EH-B
0344
CL 16532149_023.eps
131201

1326-A	C1
1326-B	C1
1326-C	D1
1327	E2
1328	B1
1333	A9
1344	F9
1346	E9
1800	E2
1801	C2
1802	F2
1803	F2
1804	E3
1805	B2
1806	A2
1936	C9
2803	C3
2804	C4
2805	D4
2806	D3
2807	A3
2810	B4
2811	B5
2813	C6
2832	E6
2834	F4
2840	F2
2841	F2
3801	A3
3802	C3
3803	C4
3804	D4
3805	C3
3806	D3
3808	B4
3809	A3
3810	C4
3811	C4
3812	B4
3813	B5
3814	C5
3815	C3
3816	B3
3826	E5
3827	E5
3828	F3
3829	F3
3830	F4
3835	D5
3842	E5
3845	A3
3846	A4
3847	A4
3848	A5
3849	A5
3999	F7
4800	D2
4801	D2
4803	F5
4804	C6
5800	A8
6801	B3
6802	C2
6803	C3
6804	D2
6805	D3
6806	E2
6807	A3
6808	B2
7811	B4
7812	B5
7813	A5
9800	F6
9810	B6

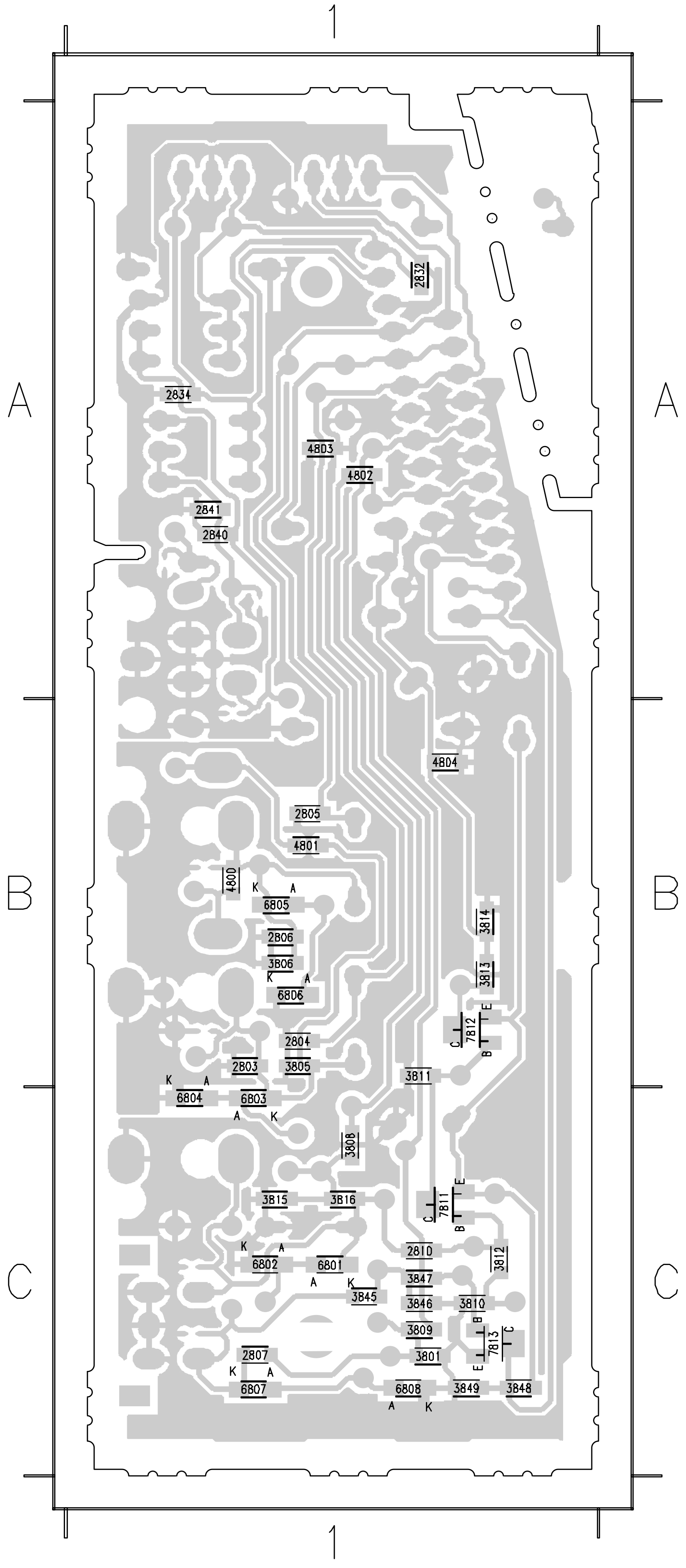
Layout Side I/O Panel

Top View


1
A
B
C
1346
1344
3999
1936
1333
9803
3842
3827
3826
PHILIPS
3830
3829
3828
9802
3835
9810
2813
5800
1327
9800
3804
1326
3803
2811
3802
1328

1326	B1
1327	A1
1328	C1
1333	A1
1344	A1
1346	A1
1936	A1
2811	B1
2813	A1
3802	C1
3803	B1
3804	B1
3826	A1
3827	A1
3828	A1
3829	A1
3830	A1
3835	A1
3842	A1
3999	A1
5800	A1
9800	B1
9802	A1
9803	A1
9810	A1

Bottom View

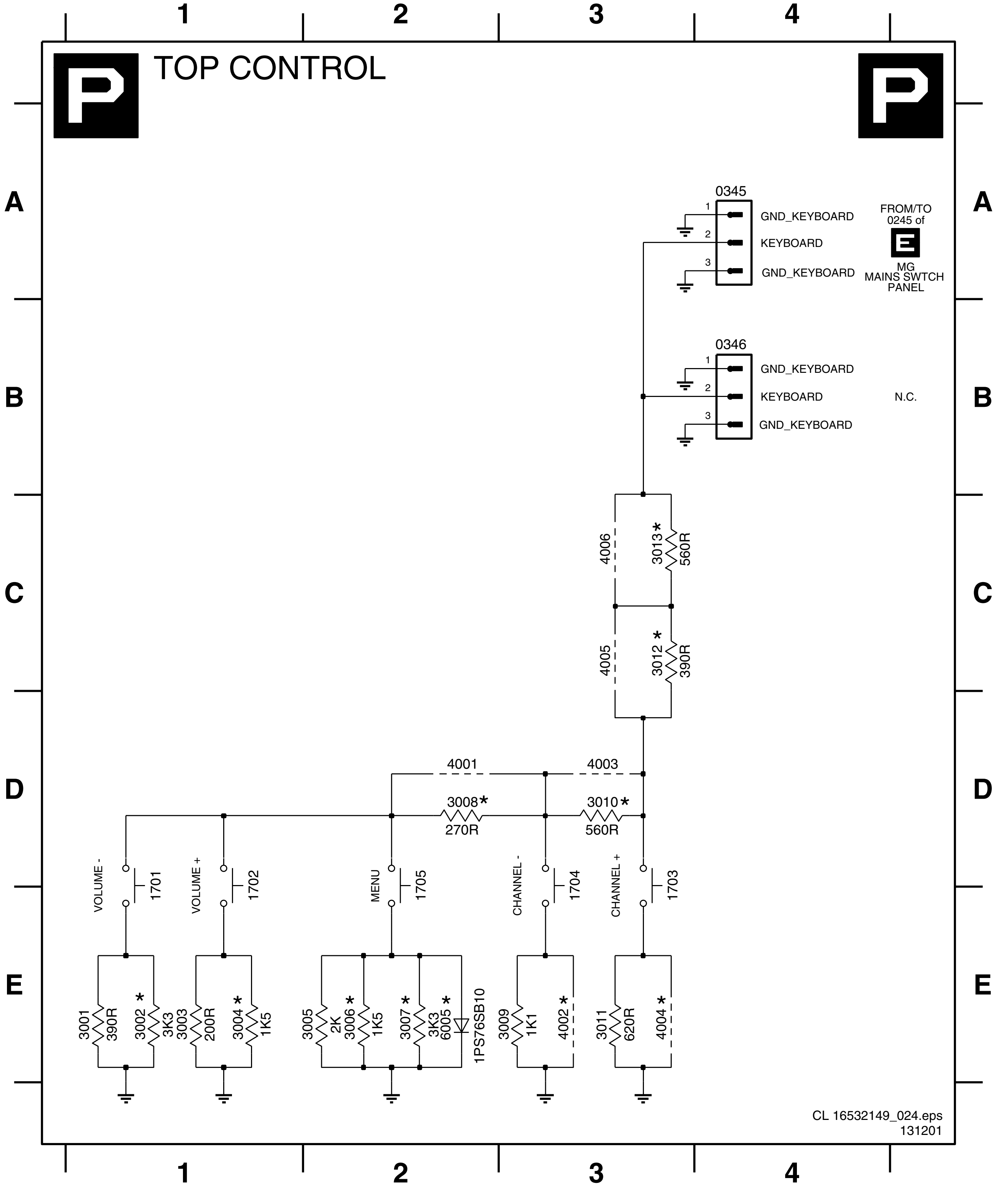

1
A
B
C
2832
2834
4803
4802
2841
2840
4804
2805
4801
4800
6805
2806
3806
6806
3814
3813
7812
2804
2803
3805
3811
6804
6803
3808
3815
3816
7811
6802
6801
2810
3812
3847
3845
3846
3810
3809
7813
3801
2807
6807
6808
3849
3848

2803	B1
2804	B1
2805	B1
2806	B1
2807	C1
2810	C1
2832	A1
2834	A1
2840	A1
2841	A1
3801	C1
3805	B1
3806	B1
3808	C1
3809	C1
3810	C1
3811	B1
3812	C1
3813	B1
3814	B1
3815	C1
3816	C1
3845	C1
3846	C1
3847	C1
3848	C1
3849	C1
4800	B1
4801	B1
4802	A1
4803	A1
4804	B1
6801	C1
6802	C1
6803	B1
6804	C1
6805	B1
6806	B1
6807	C1
6808	C1
7811	C1
7812	B1
7813	C1

CL 16532149_048.eps
201201

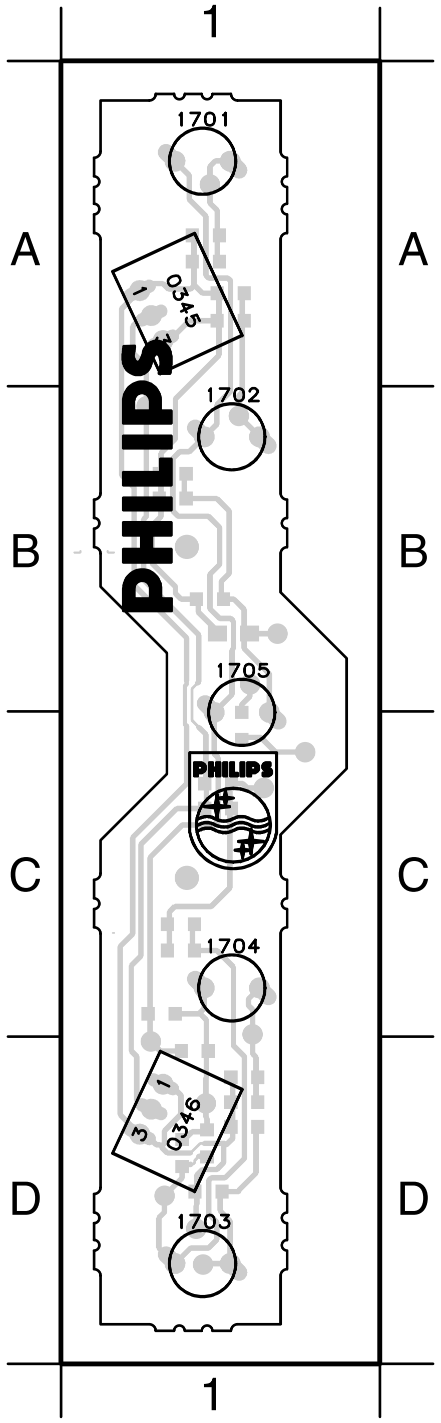
Top Control Panel

0345	A4
0346	B4
1701	D1
1702	D1
1703	D3
1704	D3
1705	D2
3001	E1
3002	E1
3003	E1
3004	E1
3005	E2
3006	E2
3007	E2
3008	D2
3009	E3
3010	D3
3011	E3
3012	C3
3013	C3
3999	D4
4001	D2
4002	E3
4003	D3
4004	E3
4005	C3
4006	C3
6005	E2


1
2
3
4
A
B
C
D
E
P
TOP CONTROL
P
0345
1
2
3
GND_KEYBOARD
KEYBOARD
GND_KEYBOARD
FROM/TO
0245 of
E
MG
MAINS SWTCH
PANEL
0346
1
2
3
GND_KEYBOARD
KEYBOARD
GND_KEYBOARD
N.C.
4006
3013 *
560R
4005
3012 *
390R
4001
4003
3008 *
270R
3010 *
560R
VOLUME -
1701
VOLUME +
1702
MENU
1705
CHANNEL -
1704
CHANNEL +
1703
3001
390R
3002 *
3K3
3003
200R
3004 *
1K5
3005
2K
3006 *
1K5
3007 *
3K3
6005 *
1PS76SB10
3009
1K1
4002 *
3011
620R
4004 *
CL 16532149_024.eps
131201

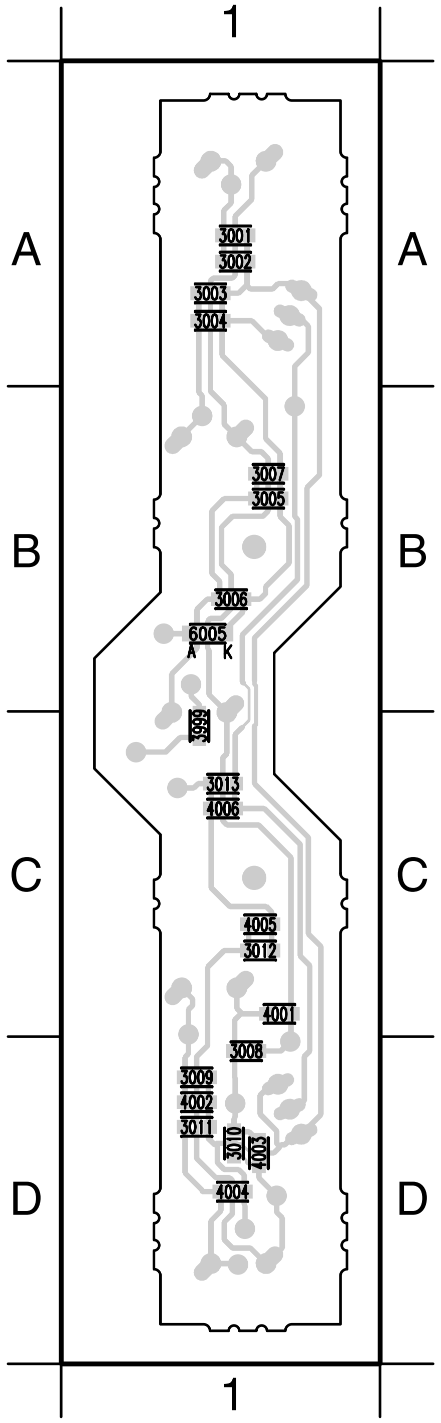
Layout Top Control Panel

Top View


1
A
B
C
D
1701
0345
1
3
1702
PHILIPS
1705
PHILIPS
1704
0346
1
3
1703
1

0345	A1
0346	D1
1701	A1
1702	A1
1703	D1
1704	C1
1705	B1

Bottom View

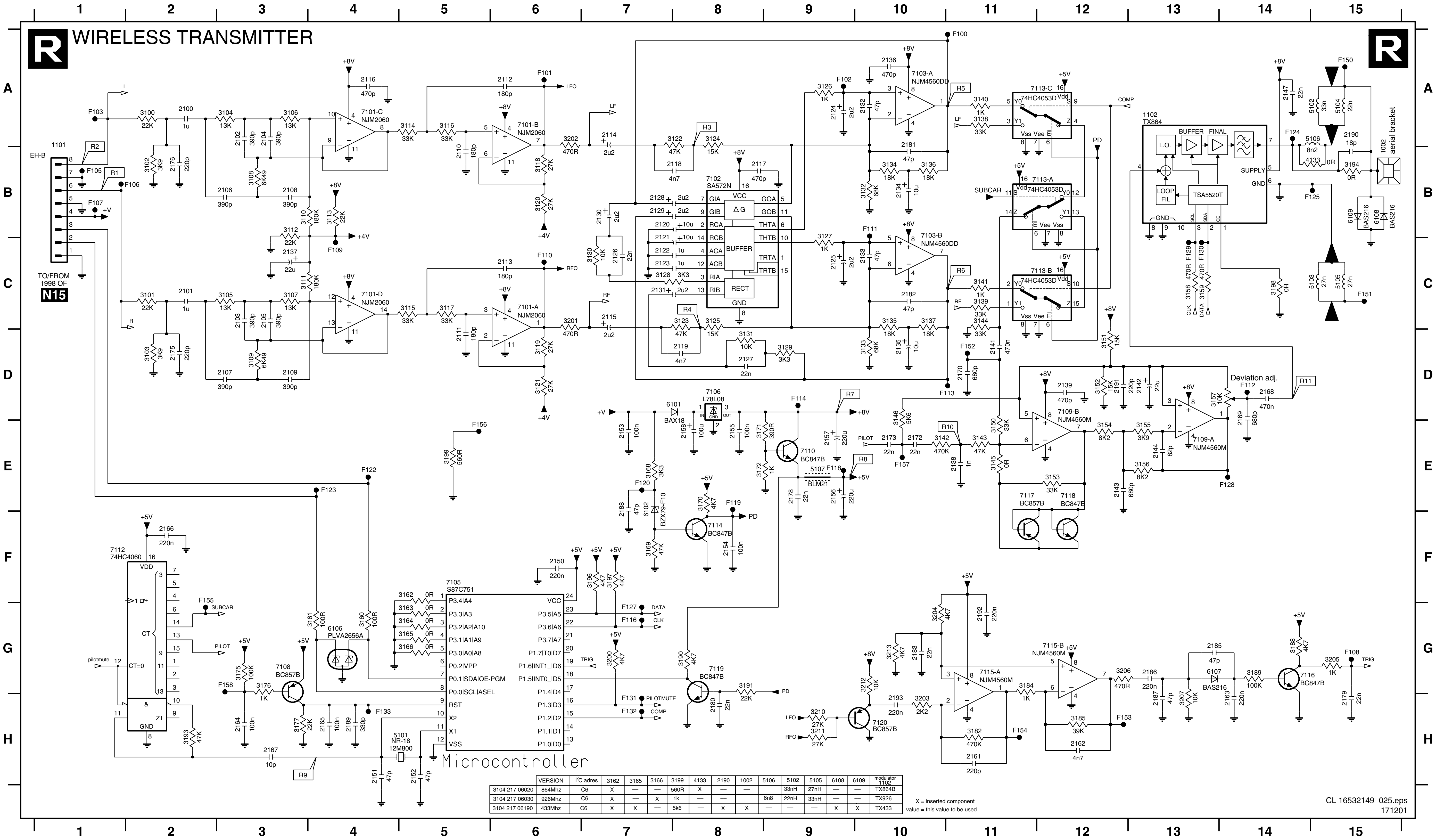

1
A
B
C
D
3001
3002
3003
3004
3007
3005
3006
6005
A
K
3999
3013
4006
4005
3012
4001
3008
3009
4002
3011
3010
4003
4004
1

3001	A1
3002	A1
3003	A1
3004	A1
3005	B1
3006	B1
3007	B1
3008	D1
3009	D1
3010	D1
3011	D1
3012	C1
3013	C1
3999	C1
4001	C1
4002	D1
4003	D1
4004	D1
4005	C1
4006	C1
6005	B1

CL 16532149_049.eps
201201

Wireless Transmitter

1002 A15	2106 B3	2115 C7	2124 A9	2133 C10	2143 E12	2156 E9	2167 H3	2179 G15	2189 H4	3104 A3	3113 B4	3122 A8	3131 D8	3140 A11	3152 D12	3161 G4	3171 E8	3189 G14	3200 G7	3211 H9	5106 A15	7101-B A6	7109-A E13	7115-B G12	F103 A1	F113 D11	F125 B15	F151 C15
1101 A1	2107 D3	2116 A4	2125 C9	2134 B10	2144 E13	2157 E9	2168 D14	2180 H8	2190 A15	3105 C3	3114 A5	3123 C8	3132 B10	3141 C11	3153 E12	3162 F5	3172 E8	3190 G8	3201 C6	3212 G10	5107 E9	7101-C A4	7109-B D12	7116 G14	F105 B1	F114 D9	F127 G7	F152 D11
1102 A13	2108 B3	2117 B8	2126 C7	2135 D10	2147 A14	2158 E8	2169 D14	2181 A10	2191 D12	3106 A3	3115 C5	3124 A8	3133 D10	3142 E10	3154 E12	3163 G5	3175 G3	3191 G8	3202 A6	3213 G10	6101 D8	7101-D C4	7110 E9	7117 E11	F106 B2	F116 G7	F128 E14	F153 H12
2100 A2	2109 D3	2118 B8	2127 D8	2136 A10	2150 F6	2161 H11	2170 D11	2182 C10	2192 G11	3107 C3	3116 A5	3125 C8	3134 B10	3143 E11	3155 E13	3164 G5	3176 G3	3193 H2	3203 H10	4133 B15	6102 E7	7102 B8	7112 F1	7118 E12	F107 B1	F118 E9	F129 C13	F154 H11
2101 C2	2110 B5	2119 D8	2128 B7	2137 C3	2151 H4	2162 H12	2172 E10	2183 G10	2193 H10	3108 B3	3117 C5	3126 A9	3135 C10	3144 C11	3156 E13	3165 G5	3177 H3	3194 B15	3204 G10	5101 H5	6106 G4	7103-A A10	7113-A B12	7119 G8	F108 G15	F119 E8	F130 C13	F155 F2
2102 A3	2111 D5	2120 B7	2129 B7	2138 E11	2152 H5	2163 H14	2173 E10	2185 G13	3100 A2	3109 D3	3118 B6	3127 C9	3136 B10	3145 E11	3157 D13	3166 G5	3182 H11	3196 F7	3205 G15	5102 A15	6107 G13	7103-B B10	7113-B C12	7120 H10	F109 C4	F120 E7	F131 H7	F156 E5
2103 C3	2112 A6	2121 C7	2130 B7	2139 D12	2153 E7	2164 H3	2175 D2	2186 G13	3101 C2	3110 B3	3119 D6	3128 C7	3137 C10	3146 D10	3158 C13	3168 E7	3184 G11	3197 F7	3206 G12	5103 C15	6108 B15	7105 F5	7113-C A12	F100 A11	F110 C6	F122 E4	F132 H7	F157 E10
2104 A3	2113 C6	2122 C7	2131 C7	2141 D11	2154 F8	2165 H4	2176 B2	2187 H13	3102 B2	3111 C3	3120 B6	3129 D9	3138 A11	3150 E11	3159 C13	3169 F7	3185 H12	3198 C14	3207 H13	5104 A15	6109 B15	7106 D8	7114 F8	F101 A6	F111 B10	F123 E4	F133 H4	F158 G3
2105 C3	2114 A7	2123 C7	2132 A10	2142 D13	2155 E8	2166 F2	2178 E9	2188 E7	3103 D2	3112 B3	3121 D6	3130 C7	3139 C11	3151 D12	3160 G4	3170 E8	3188 G14	3199 E5	3210 H9	5105 C15	7101-A C6	7108 G3	7115-A G11	F102 A9	F112 D14	F124 A14	F150 A15	

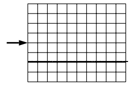


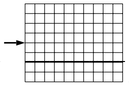
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
A
B
C
D
E
F
G
H
R
WIRELESS TRANSMITTER
1101
EH-B
TO/FROM
1998 OF
N15
F103
F105
F106
F107
+V
R1
R2
L
R
3100 22K
2100 1u
3101 22K
2101 1u
3102 3K9
2176 220p
3103 3K9
2175 220p
3104 13K
3105 13K
3106 13K
3107 13K
2102 390p
2104 390p
2103 390p
2105 390p
3108 6K49
3109 6K49
2106 390p
2108 390p
2107 390p
2109 390p
3110 180K
3111 180K
3112 22K
2137 22u
3113 22K
F109
+4V
+8V
2116 470p
7101-C NJM2060
7101-D NJM2060
3114 33K
3115 33K
3116 33K
3117 33K
2110 180p
2111 180p
2112 180p
2113 180p
7101-B NJM2060
7101-A NJM2060
F101
F110
LFO
RFO
3118 27K
3120 27K
3119 27K
3121 27K
3202 470R
3201 470R
LF
RF
2114 2u2
2115 2u2
3122 47K
3124 15K
R3
2118 4n7
3123 47K
3125 15K
R4
2119 4n7
2130 2u2
3130 10K
2126 22n
2128 2u2
2129 2u2
2120 10u
2121 10u
2122 1u
2123 1u
3128 3K3
2131 2u2
7102 SA572N
VCC
ΔG
BUFFER
RECT
GND
GIA
GIB
RCA
RCB
ACA
ACB
RIA
RIB
GOA
GOB
THTA
THTB
TRTA
TRTB
2117 470p
3131 10K
2127 22n
3129 3K3
F100
F102
F111
F113
3126 1K
3127 1K
2124 2u2
2125 2u2
2132 47p
2133 47p
2136 470p
7103-A NJM4560DD
7103-B NJM4560DD
2181 47p
2182 47p
3134 18K
3136 18K
3135 18K
3137 18K
3132 68K
3133 68K
2134 10u
2135 10u
R5
R6
3140 1K
3138 33K
3141 1K
3139 33K
3144 33K
7113-C 74HC4053D
7113-A 74HC4053D
7113-B 74HC4053D
COMP
SUBCAR
PD
1102 TX864
L.O.
BUFFER
FINAL
LOOP FIL
TSA5520T
GND
SCL
SDA
CE
SUPPLY
3158 470R
3159 470R
F129
F130
CLK
DATA
3198 0R
F124
5106 8n2
4133 0R
2190 18p
3194 0R
2147 22n
5102 33n
5104 22n
F150
1002 aerial bracket
6109 BAS216
6108 BAS216
F125
5103 27n
5105 27n
F151
3151 15K
2141 470n
F152
2170 680p
3152 15K
2191 220p
2142 22u
2139 470p
7109-B NJM4560M
7109-A NJM4560M
3157 10K
Deviation adj.
F112
2168 470n
2169 680p
R11
3146 5K6
3150 33K
3145 0R
PILOT
2173 22n
2172 22n
3142 470K
2138 1n
F157
R10
3143 47K
3154 8K2
3155 3K9
2144 82p
3156 8K2
3153 33K
2143 680p
F128
7117 BC857B
7118 BC847B
6101 BAX18
7106 L78L08
2153 100n
2158 100u
2155 100n
3171 390R
F114
R7
+8V
2157 220u
7110 BC847B
3172 1K
R8
+5V
5107
BLM21
F118
2178 22n
2156 220u
3168 3K3
F120
2188 47p
6102 BZX79-F10
3170 4K7
F119
7114 BC847B
3169 47K
2154 100n
F156
3199 560R
F122
F123
7112 74HC4060
VDD
CT
CT=0
GND
pilotmute
F155
SUBCAR
PILOT
2166 220n
3193 47K
2167 10p
R9
3161 100R
3160 100R
6106 PLVA2656A
3175 100K
3176 1K
F158
7108 BC857B
2164 100n
3177 22K
2165 100n
2189 330p
F133
5101 NR-18 12M800
2151 47p
2152 47p
7105 S87C751
Microcontroller
3162 0R
3163 0R
3164 0R
3165 0R
3166 0R
P3.4|A4
P3.3|A3
P3.2|A2|A10
P3.1|A1|A9
P3.0|A0|A8
P0.2|VPP
P0.1|SDA|OE-PGM
P0.0|SCL|ASEL
RST
X2
X1
VSS
VCC
P3.5|A5
P3.6|A6
P3.7|A7
P1.7|T0|D7
P1.6|INT1_|D6
P1.5|INT0_|D5
P1.4|D4
P1.3|D3
P1.2|D2
P1.1|D1
P1.0|D0
2150 220n
3196 4K7
3197 4K7
F127
F116
DATA
CLK
TRIG
3200 4K7
F131
F132
PILOTMUTE
COMP
3190 4K7
7119 BC847B
2180 22n
3191 22K
PD
3204 4K7
2192 220n
3213 4K7
2183 22n
7115-A NJM4560M
7115-B NJM4560M
3212 10K
2193 220n
3203 2K2
3210 27K
3211 27K
7120 BC857B
3184 1K
3182 470K
2161 220p
F154
3185 39K
2162 4n7
F153
3206 470R
2186 220n
2187 47p
3207 10K
2185 47p
6107 BAS216
2163 220n
3189 100K
3188 4K7
7116 BC847B
3205 1K
F108
2179 22n

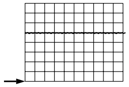
	VERSION	I²C adres	3162	3165	3166	3199	4133	2190	1002	5106	5102	5105	6108	6109	modulator 1102
3104 217 06020	864Mhz	C6	X	—	—	560R	X	—	—	—	33nH	27nH	—	—	TX864B
3104 217 06030	926Mhz	C6	X	—	X	1k	—	—	—	6n8	22nH	33nH	—	—	TX926
3104 217 06190	433Mhz	C6	X	X	—	5k6	—	X	X	—	—	—	X	X	TX433

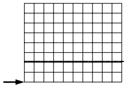
X = inserted component
value = this value to be used

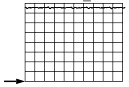
CL 16532149_025.eps
171201

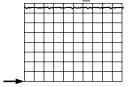
R1 L

50mV / div DC
20ms /div

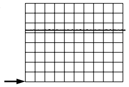
R2 R

50mV / div DC
20ms /div

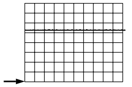
R3 LF

0.5V / div DC
20ms /div

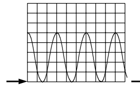
R4 RF

0.5V / div DC
20ms /div

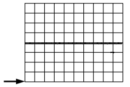
R5 7103_PIN1

0.5V / div DC
20ms /div

R6 7103_PIN7

0.5V / div DC
20ms /div

R7 +8V

2V / div DC
20ms /div

R8 +5V

1V / div DC
20ms /div

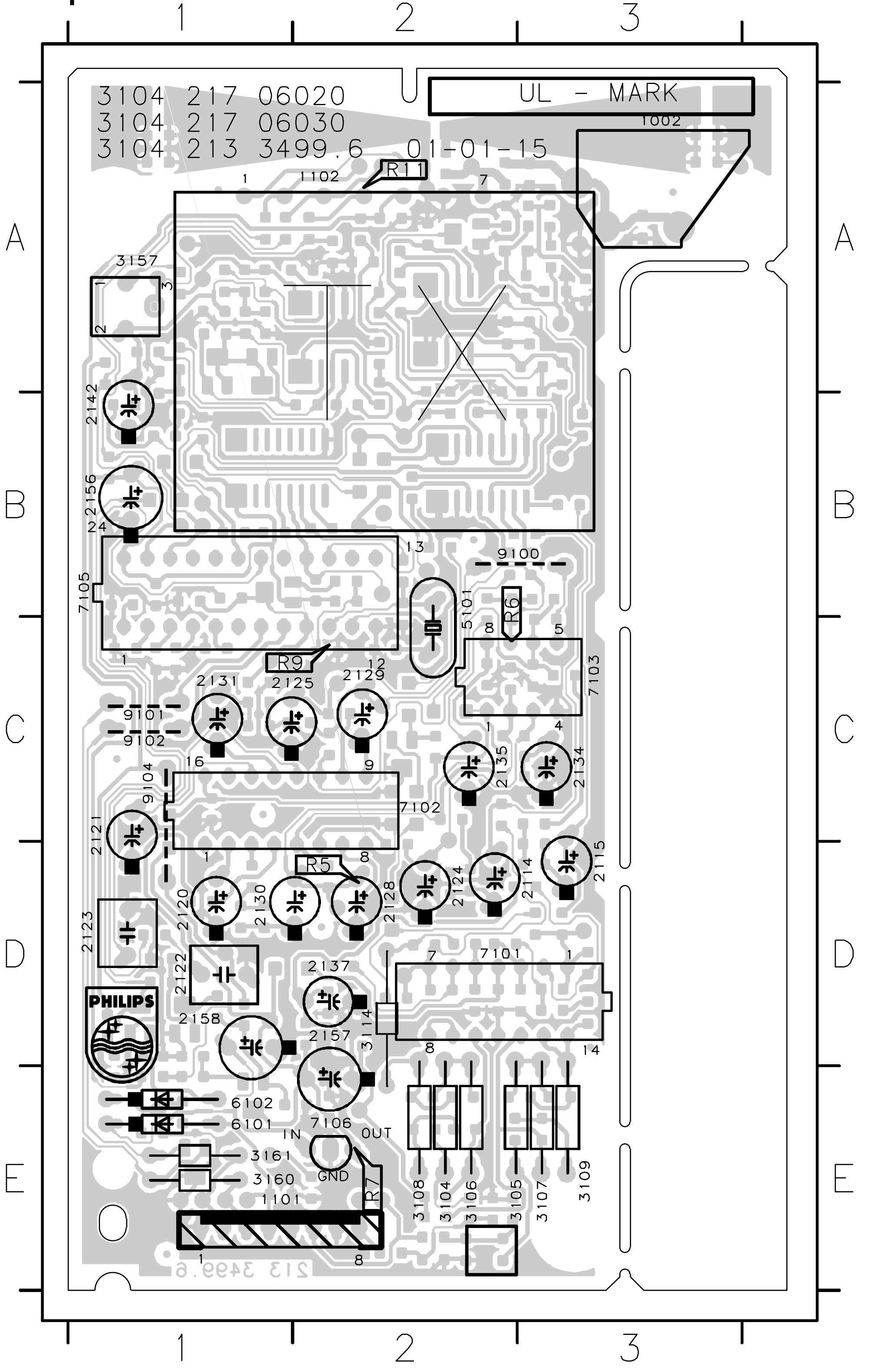
R9 CLOCK

1V / div DC
2ms /div

R10 PILOT

1V / div DC
20ms /div

R11 1102_PIN4

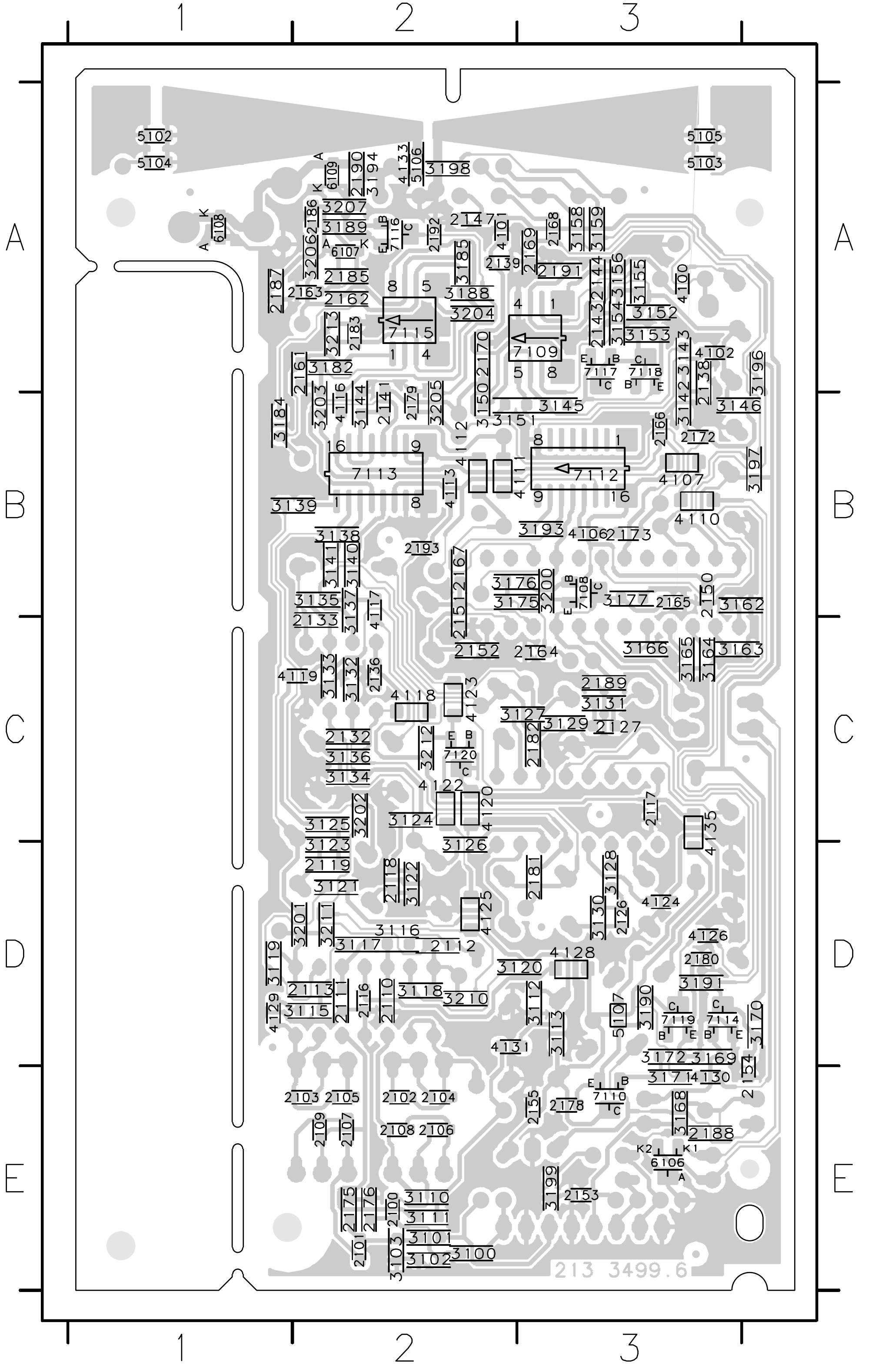
Layout Wireless Transmitter

Top View


1
2
3
A
B
C
D
E
3104 217 06020
3104 217 06030
3104 213 3499.6 01-01-15
UL - MARK
1002
1102
R11
3157
2142
2156
7105
9100
5101
R6
R9
2131
2125
2129
7103
9101
9102
9104
7102
2135
2134
2121
2115
2114
2124
2128
2130
2120
R5
2123
2122
2137
7101
3114
2158
2157
PHILIPS
6102
6101
7106
IN
OUT
GND
3161
3160
1101
R7
3108
3104
3106
3105
3107
3109
213 3499.6

1002	A3
1101	E1
1102	A2
2114	D3
2115	D3
2120	D1
2121	C1
2122	D1
2123	D1
2124	D2
2125	C1
2128	D2
2129	C2
2130	D1
2131	C1
2134	C3
2135	C2
2137	D2
2142	B1
2156	B1
2157	D2
2158	D1
3104	E2
3105	E2
3106	E2
3107	E3
3108	E2
3109	E3
3114	D2
3157	A1
3160	E1
3161	E1
5101	B2
6101	E1
6102	E1
7101	D2
7102	C2
7103	C3
7105	B1
7106	E2
9100	B3
9101	C1
9102	C1
9104	C1

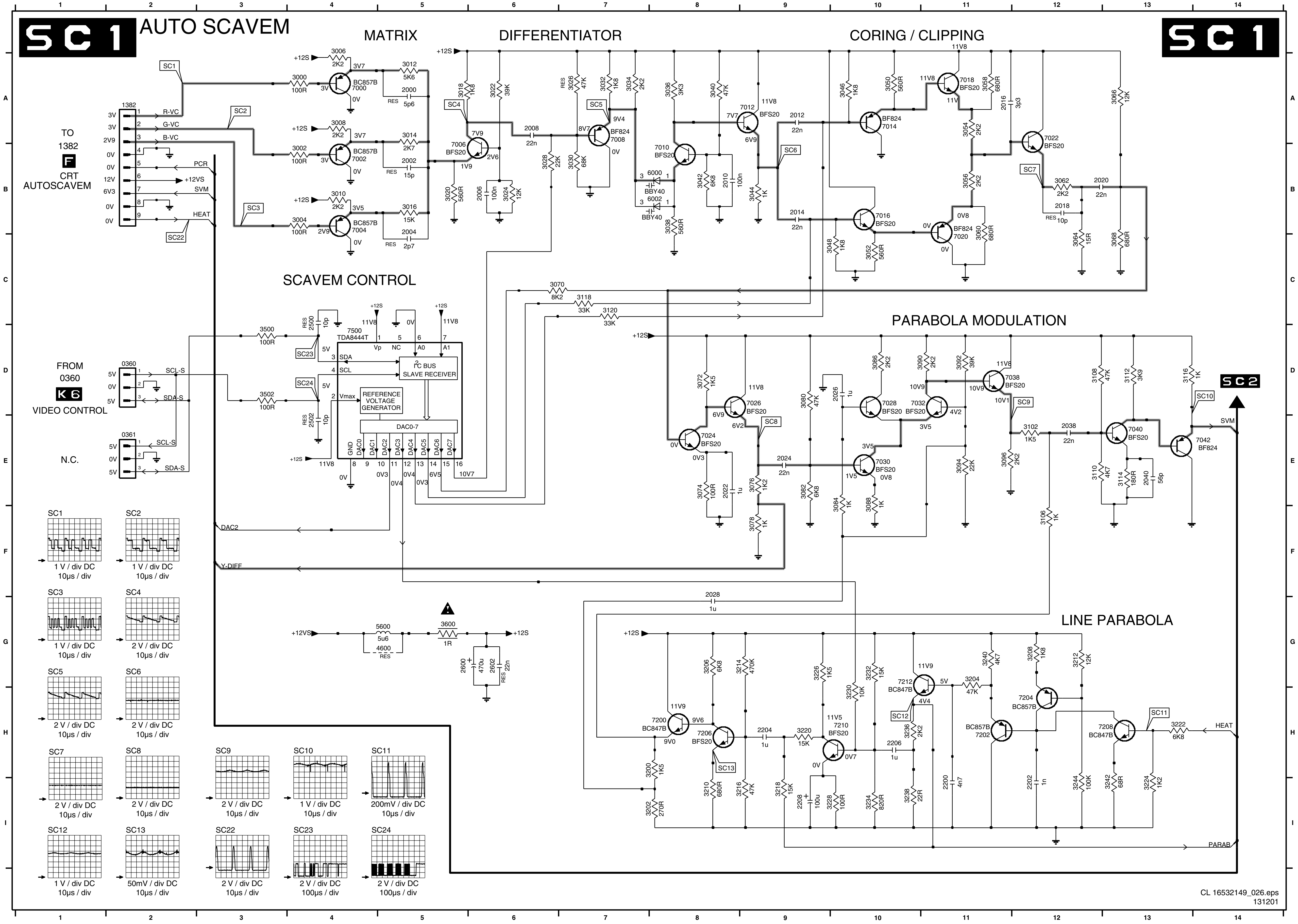
Bottom View


1
2
3
A
B
C
D
E
5102
5104
5105
5103
6109
2190
3194
4133
5106
3198
3207
3189
2147
3188
3204
7115
7109
3152
3153
3145
3151
7113
7112
3139
3193
3176
3175
3177
3166
3163
3162
2189
3131
3129
3124
3126
3120
3210
3191
3172
3169
6106
2188
3110
3111
3101
3102
3100
213 3499.6

2100	E2
2101	E2
2102	E2
2103	E1
2104	E2
2105	E1
2106	E2
2107	E2
2108	E2
2109	E1
2110	D2
2111	D1
2112	D2
2113	D1
2116	D2
2117	C3
2118	D2
2119	D1
2126	D3
2127	C3
2132	C2
2133	C1
2136	C2
2138	A3
2139	A2
2141	B2
2143	A3
2144	A3
2147	A2
2150	B3
2151	B2
2152	C2
2153	E3
2154	E3
2155	E2
2161	A1
2162	A2
2163	A1
2164	C2
2165	B3
2166	B3
2167	B2
2168	A2
2169	A2
2170	A2
2172	B3
2173	B3
2175	E2
2176	E2
2178	E2
2179	B2
2180	D3
2181	D2
2182	C2
2183	A2
2185	A2
2186	A1
2187	A1
2188	E3
2189	C3
2190	A2
2191	A2
2192	A2
2193	B2
3100	E2
3101	E2
3102	E2
3103	E2
3110	E2
3111	E2
3112	D2
3113	D2
3115	D1
3116	D2
3117	D2
3118	D2
3119	D1
3120	D2
3121	D1
3122	D2
3123	D1
3124	C2
3125	C1
3126	D2
3127	C2
3128	D3
3129	C2
3130	D3
3131	C3
3132	C2
3133	C1
3134	C2
3135	B1
3136	C2
3137	B2
3138	B1
3139	B1
3140	B2
3141	B1
3142	B3
3143	A3
3144	B2
3145	B2
3146	B3
3150	B2
3151	B2
3152	A3
3153	A3
3154	A3
3155	A3
3156	A3
3158	A3
3159	A3
3162	B3
3163	C3
3164	C3
3165	C3
3166	C3
3168	E3
3169	D3
3170	D3
3171	E3
3172	D3
3175	B2
3176	B2
3177	B3
3182	A1
3184	B1
3185	A2
3188	A2
3189	A1
3190	D3
3191	D3
3193	B2
3194	A2
3196	A3
3197	B3
3198	A2
3199	E2
3201	D1
3202	C2
3203	B1
3204	A2
3205	B2
3206	A1
3207	A1
3210	D2
3211	D1
3212	C2
3213	A1
3200	B2
4100	A3
4101	A2
4102	A3
4106	B3
4107	B3
4110	B3
4112	B2
4117	B2
4118	C2
4119	C1
4120	C2
4122	C2
4123	C2
4124	D3
4125	D2
4126	D3
4128	D3
4129	D1
4130	E3
4131	D2
4133	A2
4135	C3
4111	B2
4113	B2
4116	B1
5102	A1
5103	A3
5104	A1
5105	A3
5106	A2
5107	D3
6106	E3
6107	A1
6108	A1
6109	A1
7108	B3
7109	A2
7110	E3
7113	B2
7114	D3
7115	A2
7116	A2
7117	A3
7118	A3
7119	D3
7120	C2
7112	B3
F100	D2
F101	D2
F102	C2
F103	E2
F105	E3
F106	E2
F107	E3
F108	B2
F109	E2
F110	D1
F111	C2
F112	A3
F113	C2
F114	D3
F116	B3
F118	D3
F119	B2
F120	E3
F122	E3
F123	E3
F124	A2
F125	A2
F127	B3
F128	A3
F129	A2
F130	A2
F131	B2
F132	B2
F133	C3
F150	A1
F151	A3
F152	B2
F153	A1
F154	B1
F155	B2
F156	E3
F157	B3
F158	C2

CL 16532149_052.eps
201201

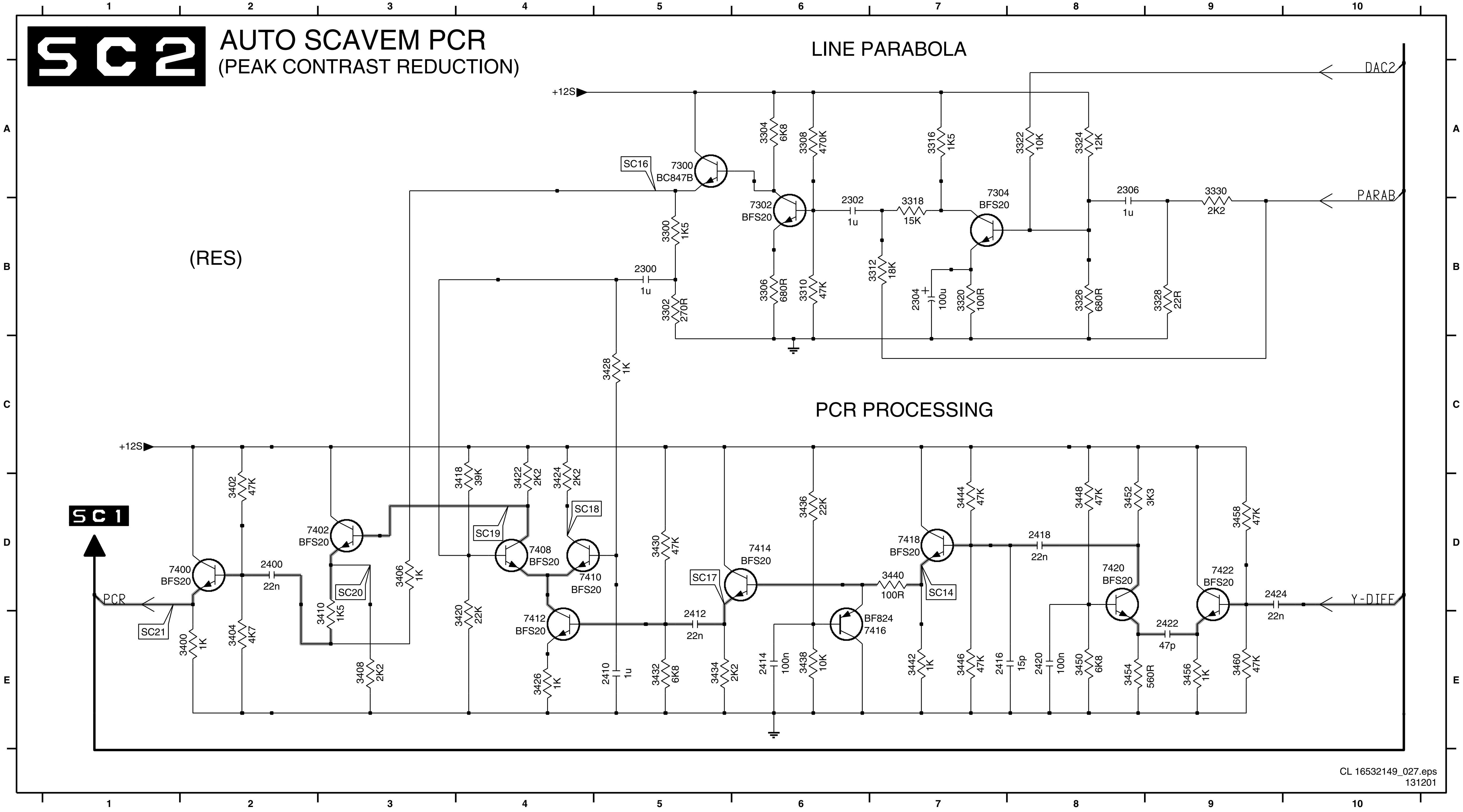
Auto SCAVEM


SC1
AUTO SCAVEM
MATRIX
DIFFERENTIATOR
CORING / CLIPPING
SCAVEM CONTROL
PARABOLA MODULATION
LINE PARABOLA
SC2
TO 1382 F CRT AUTOSCAVEM
1382
R-VC
G-VC
B-VC
PCR
+12VS
SVM
HEAT
FROM 0360 K6 VIDEO CONTROL
0360
SCL-S
SDA-S
N.C.
0361
7500 TDA8444T
I²C BUS SLAVE RECEIVER
REFERENCE VOLTAGE GENERATOR
DAC0-7
DAC2
Y-DIFF
SVM
HEAT
PARAB
+12VS
5600 5u6
4600 RES
3600 1R
+12S
2600 470u
2602 22n
BC857B
BFS20
BF824
BC847B
BBY40
SC1 1 V / div DC 10µs / div
SC2 1 V / div DC 10µs / div
SC3 1 V / div DC 10µs / div
SC4 2 V / div DC 10µs / div
SC5 2 V / div DC 10µs / div
SC6 2 V / div DC 10µs / div
SC7 2 V / div DC 10µs / div
SC8 2 V / div DC 10µs / div
SC9 2 V / div DC 10µs / div
SC10 1 V / div DC 10µs / div
SC11 200mV / div DC 10µs / div
SC12 1 V / div DC 10µs / div
SC13 50mV / div DC 10µs / div
SC22 2 V / div DC 10µs / div
SC23 2 V / div DC 100µs / div
SC24 2 V / div DC 100µs / div
CL 16532149_026.eps
131201

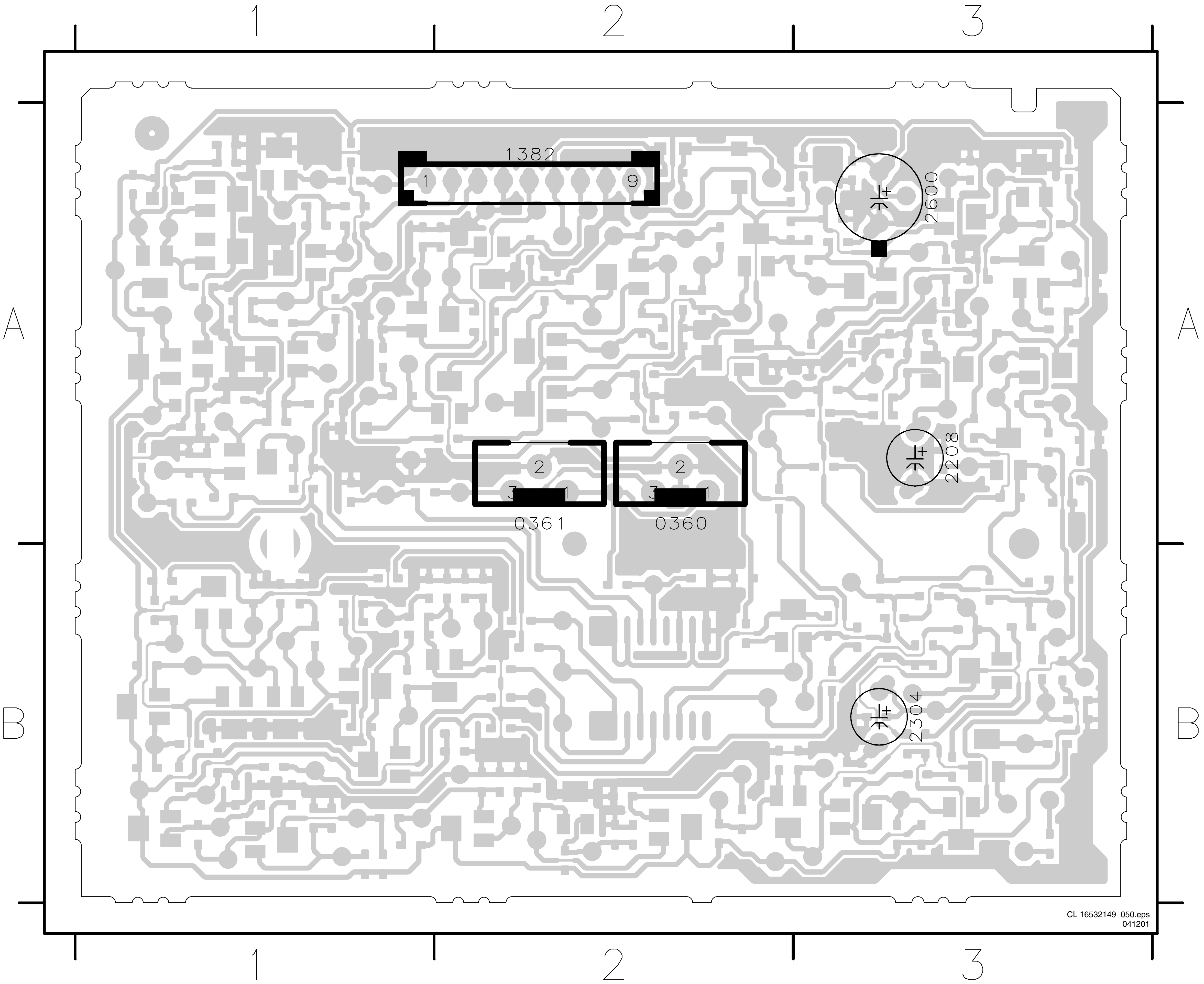
0360	D2
0361	E2
1382	A2
2000	A5
2002	B5
2004	B5
2006	B6
2008	A6
2010	B8
2012	A9
2014	B9
2016	A11
2018	B12
2020	B12
2022	E8
2024	E9
2026	D10
2028	F8
2038	E12
2040	E13
2200	I11
2202	I12
2204	H9
2206	H10
2208	I9
2500	C4
2502	E4
2600	G5
2602	G6
3000	A4
3002	B4
3004	B4
3006	A4
3008	A4
3010	B4
3012	A5
3014	A5
3016	B5
3018	A5
3020	B5
3022	A6
3024	B6
3026	A7
3028	B6
3030	B7
3032	A7
3034	A7
3036	A8
3038	B8
3040	A8
3042	B8
3044	B9
3046	A10
3048	C10
3050	A10
3052	C10
3054	A11
3056	B11
3058	A11
3060	B11
3062	B12
3064	C12
3066	A13
3068	C13
3070	C6
3072	D8
3074	E8
3076	E9
3078	F9
3080	D9
3082	E9
3084	E10
3086	D10
3088	E10
3090	D11
3092	D11
3094	E11
3096	E11
3102	E12
3106	F12
3108	D12
3110	E12
3112	D13
3114	E13
3116	D13
3118	C7
3120	C7
3200	H8
3202	I8
3204	G11
3206	G8
3208	G12
3210	I8
3212	G12
3214	G9
3216	I9
3218	I9
3220	H9
3222	H13
3224	I13
3226	G9
3228	I10
3230	H10
3232	G10
3234	I10
3236	H10
3238	I10
3240	G11
3242	I13
3244	I12
3500	D3
3502	D3
3600	G5
3999	H5
4600	G5
5600	G5
6000	B8
6002	B8
7000	A4
7002	B4
7004	B4
7006	B5
7008	A7
7010	B8
7012	A9
7014	A10
7016	B10
7018	A11
7020	B11
7022	A12
7024	E8
7026	D9
7028	D10
7030	E10
7032	D11
7038	D11
7040	E13
7042	E14
7200	H8
7202	H11
7204	H12
7206	H8
7208	H13
7210	H10
7212	G10
7500	D4

Auto SCAVEM

2300 B5
2302 B6
2304 B7
2306 A8
2400 D2
2410 E5
2412 E5
2414 E6
2416 E7
2418 D8
2420 E8
2422 E9
2424 D9
3300 B5
3302 B5
3304 A6
3306 B6
3308 A6
3310 B6
3312 B7
3316 A7
3318 B7
3320 B7
3322 A8
3324 A8
3326 B8
3328 B9
3330 A9
3400 E2
3402 D2
3404 E2
3406 D3
3408 E3
3410 D3
3418 D4
3420 E4
3422 D4
3424 D4
3426 E4
3428 C5
3430 D5
3432 E5
3434 E5
3436 D6
3438 E6
3440 D7
3442 E7
3444 D7
3446 E7
3448 D8
3450 E8
3452 D8
3454 E8
3456 E9
3458 D9
3460 E9
7300 A5
7302 B6
7304 A8
7400 D2
7402 D3
7408 D4
7410 D5
7412 E4
7414 D6
7416 E6
7418 D7
7420 D8
7422 D9

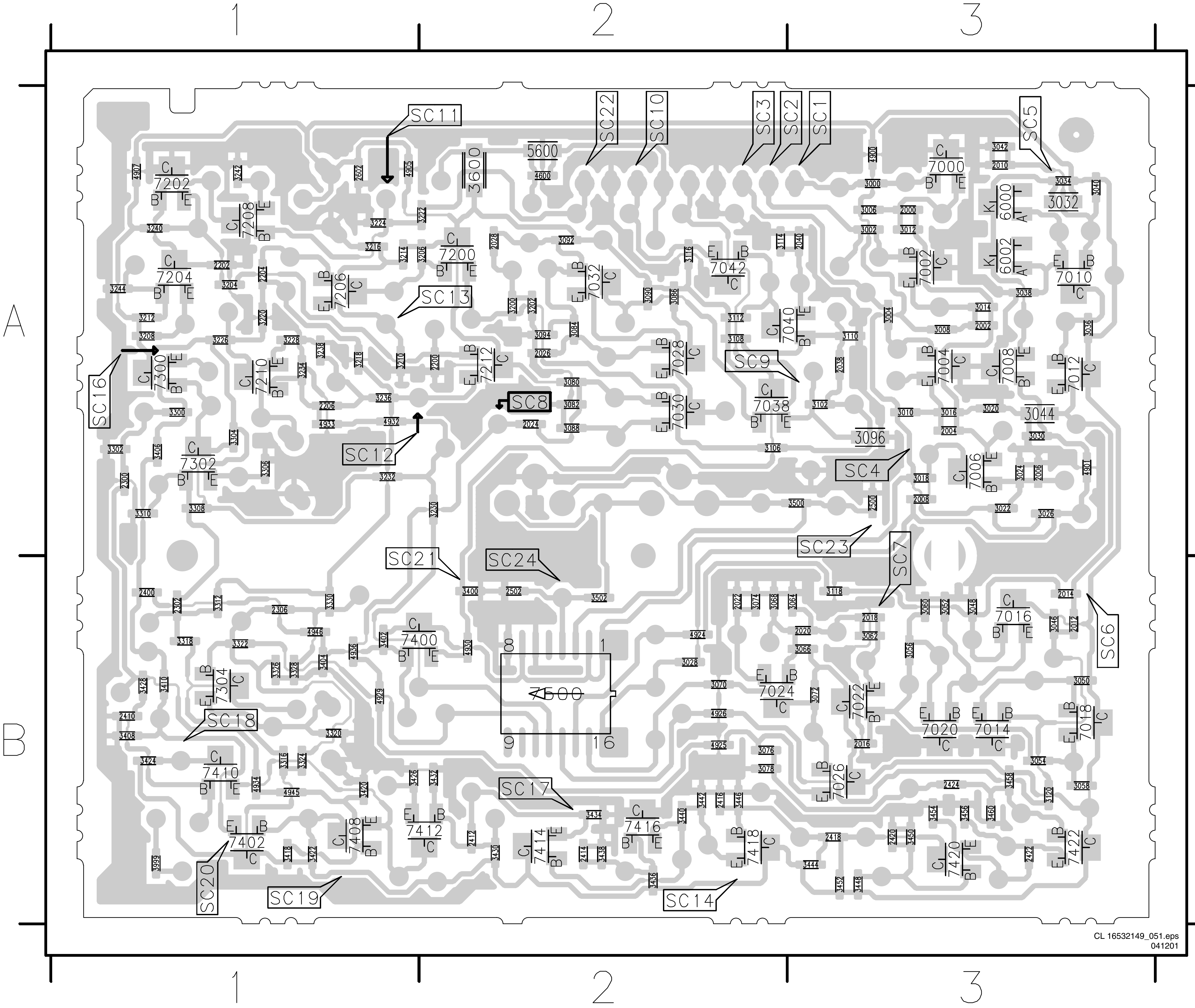

SC2
AUTO SCAVEM PCR
(PEAK CONTRAST REDUCTION)
LINE PARABOLA
(RES)
PCR PROCESSING
SC1
+12S
DAC2
PARAB
Y-DIFF
PCR
SC14
SC16
SC17
SC18
SC19
SC20
SC21
7300 BC847B
7302 BFS20
7304 BFS20
7400 BFS20
7402 BFS20
7408 BFS20
7410 BFS20
7412 BFS20
7414 BFS20
BF824 7416
7418 BFS20
7420 BFS20
7422 BFS20
2300 1u
2302 1u
2304 100u
2306 1u
2400 22n
2410 1u
2412 22n
2414 100n
2416 15p
2418 22n
2420 100n
2422 47p
2424 22n
3300 1K5
3302 270R
3304 6K8
3306 680R
3308 470K
3310 47K
3312 18K
3316 1K5
3318 15K
3320 100R
3322 10K
3324 12K
3326 680R
3328 22R
3330 2K2
3400 1K
3402 47K
3404 4K7
3406 1K
3408 2K2
3410 1K5
3418 39K
3420 22K
3422 2K2
3424 2K2
3426 1K
3428 1K
3430 47K
3432 6K8
3434 2K2
3436 22K
3438 10K
3440 100R
3442 1K
3444 47K
3446 47K
3448 47K
3450 6K8
3452 3K3
3454 560R
3456 1K
3458 47K
3460 47K
1 2 3 4 5 6 7 8 9 10
A B C D E
CL 16532149_027.eps
131201

Layout Auto SCAVEM (Top View)


1
2
3
A
B
1382
1
9
2600
2208
2304
0361
0360
2
3
1
CL 16532149_050.eps
041201

0360	A2
0361	A2
1382	A2
2208	A3
2304	B3
2600	A3

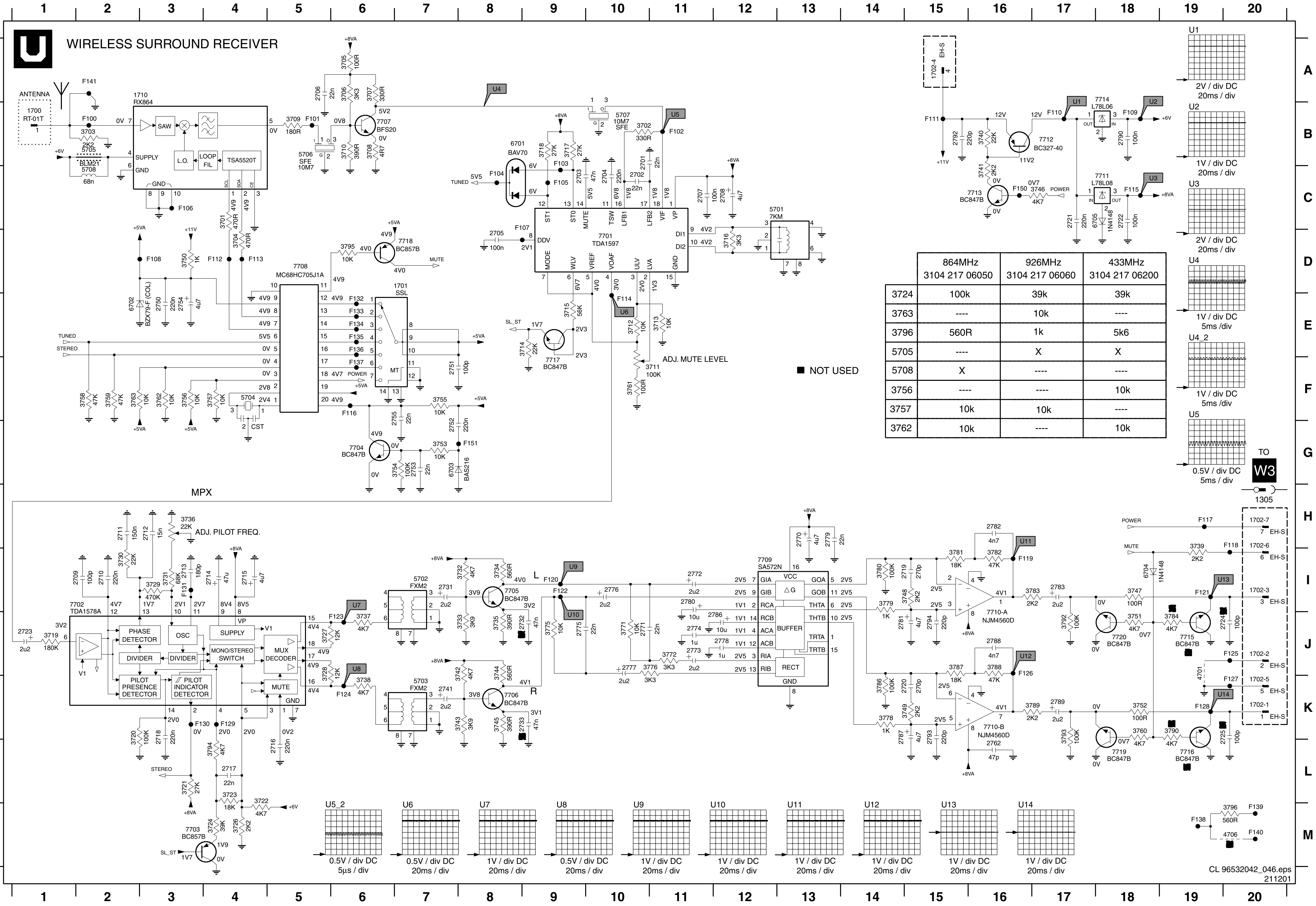
Layout Auto SCAVEM (Bottom View)


1
2
3
A
B
SC11
SC22
SC10
SC3
SC2
SC1
SC5
SC13
SC16
SC9
SC8
SC12
SC4
SC23
SC7
SC21
SC24
SC6
SC18
SC17
SC14
SC19
SC20
7202
7208
7200
7204
7206
7032
7042
7040
7002
7000
6000
6002
3032
7010
7300
7210
7212
7028
7038
7030
7004
7008
7012
3044
3096
7302
7006
3600
5600
7016
7400
7500
8
1
9
16
7304
7024
7022
7020
7014
7018
7410
7026
7402
7408
7412
7414
7416
7418
7420
7422

CL 16532149_051.eps
041201

2000	A3	3078	B2	3442	B2
2002	A3	3080	A2	3444	B3
2004	A3	3082	A2	3446	B2
2006	A3	3084	A2	3448	B3
2008	A3	3086	A2	3450	B3
2010	A3	3088	A2	3452	B3
2012	B3	3090	A2	3454	B3
2014	B3	3092	A2	3456	B3
2016	B3	3094	A2	3458	B3
2018	B3	3096	A3	3460	B3
2020	B3	3102	A3	3500	A3
2022	B2	3106	A2	3502	B2
2024	A2	3108	A2	3600	A2
2026	A2	3110	A3	3999	B1
2028	A2	3112	A2	4600	A2
2038	A3	3114	A2	4900	A3
2040	A3	3116	A2	4901	A3
2200	A2	3118	B3	4905	A1
2202	A1	3120	B3	4907	A1
2204	A1	3200	A2	4924	B2
2206	A1	3202	A2	4925	B2
2300	A1	3204	A1	4926	B2
2302	B1	3206	A2	4929	B1
2306	B1	3208	A1	4930	B2
2400	B1	3210	A1	4932	A1
2410	B1	3212	A1	4933	A1
2412	B2	3214	A1	4934	B1
2414	B2	3216	A1	4936	B1
2416	B2	3218	A1	4945	B1
2418	B3	3220	A1	4946	B1
2420	B3	3222	A2	5600	A2
2422	B3	3224	A1	6000	A3
2424	B3	3226	A1	6002	A3
2500	A3	3228	A1	7000	A3
2502	B2	3230	A2	7002	A3
2602	A1	3232	A1	7004	A3
3000	A3	3234	A1	7006	A3
3002	A3	3236	A1	7008	A3
3004	A3	3238	A1	7010	A3
3006	A3	3240	A1	7012	A3
3008	A3	3242	A1	7014	B3
3010	A3	3244	A1	7016	B3
3012	A3	3300	A1	7018	B3
3014	A3	3302	A1	7020	B3
3016	A3	3304	A1	7022	B3
3018	A3	3306	A1	7024	B2
3020	A3	3308	A1	7026	B3
3022	A3	3310	A1	7028	A2
3024	A3	3312	B1	7030	A2
3026	A3	3316	B1	7032	A2
3028	B2	3318	B1	7038	A2
3030	A3	3320	B1	7040	A3
3032	A3	3322	B1	7042	A2
3034	A3	3324	B1	7200	A2
3036	A3	3326	B1	7202	A1
3038	A3	3328	B1	7204	A1
3040	A3	3330	B1	7206	A1
3042	A3	3400	B2	7208	A1
3044	A3	3402	B1	7210	A1
3046	B3	3404	B1	7212	A2
3048	B3	3406	A1	7300	A1
3050	B3	3408	B1	7302	A1
3052	B3	3410	B1	7304	B1
3054	B3	3418	B1	7400	B1
3056	B3	3420	B1	7402	B1
3058	B3	3422	B1	7408	B1
3060	B3	3424	B1	7410	B1
3062	B3	3426	B1	7412	B2
3064	B3	3428	B1	7414	B2
3066	B3	3430	B2	7416	B2
3068	B2	3432	B2	7418	B2
3070	B2	3434	B2	7420	B3
3072	B3	3436	B2	7422	B3
3074	B2	3438	B2	7500	B2
3076	B2	3440	B2		

Wireless Surround Receiver

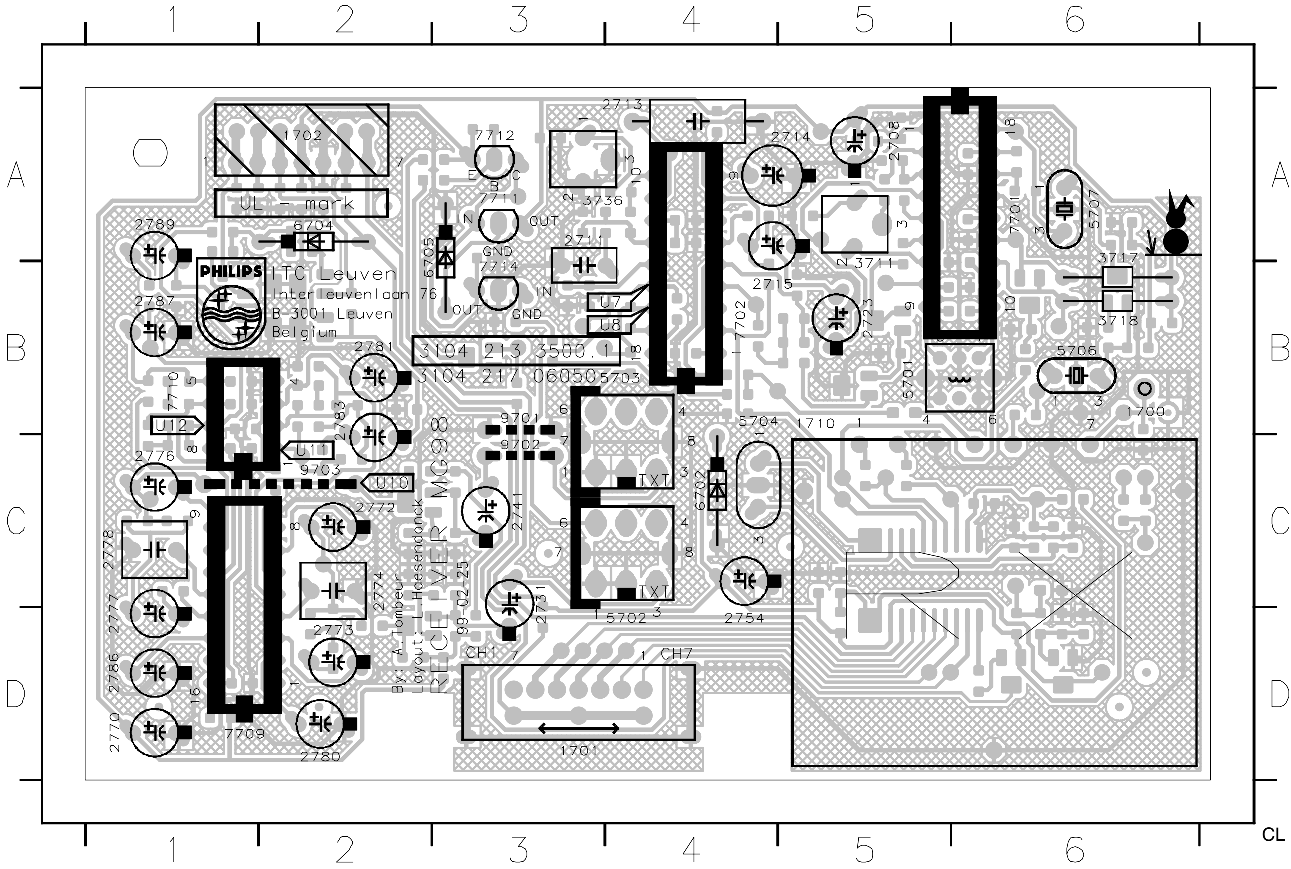

U
WIRELESS SURROUND RECEIVER
ANTENNA
1700
RT-01T
1710
RX864
SAW
L.O.
LOOP FIL
TSA5520T
SUPPLY
GND
5706
SFE
10M7
7707
BFS20
6701
BAV70
5707
10M7
SFE
7701
TDA1597
5701
7KM
7708
MC68HC705J1A
7718
BC857B
1701
SSL
MT
MUTE
TUNED
STEREO
POWER
5704
CST
7717
BC847B
7704
BC847B
6703
BAS216
ADJ. MUTE LEVEL
MPX
1702-4
EH-S
7712
BC327-40
7713
BC847B
7714
L78L06
7711
L78L08
■ NOT USED
U1
2V / div DC
20ms / div
U2
1V / div DC
20ms / div
U3
2V / div DC
20ms / div
U4
1V / div DC
5ms /div
U4_2
1V / div DC
5ms /div
U5
0.5V / div DC
5ms / div
TO
W3
1305
7702
TDA1578A
PHASE DETECTOR
OSC
DIVIDER
PILOT PRESENCE DETECTOR
PILOT INDICATOR DETECTOR
SUPPLY
MONO/STEREO SWITCH
MUX DECODER
MUTE
ADJ. PILOT FREQ.
5702
FXM2
5703
FXM2
7705
BC847B
7706
BC847B
7709
SA572N
VCC
BUFFER
RECT
7710-A
NJM4560D
7710-B
NJM4560D
7715
BC847B
7716
BC847B
7719
BC847B
7720
BC847B
7703
BC857B
L
R
U5_2
0.5V / div DC
5µs / div
U6
0.5V / div DC
20ms / div
U7
1V / div DC
20ms / div
U8
0.5V / div DC
20ms / div
U9
1V / div DC
20ms / div
U10
1V / div DC
20ms / div
U11
1V / div DC
20ms / div
U12
1V / div DC
20ms / div
U13
1V / div DC
20ms / div
U14
1V / div DC
20ms / div
CL 96532042_046.eps
211201

	864MHz 3104 217 06050	926MHz 3104 217 06060	433MHz 3104 217 06200
3724	100k	39k	39k
3763	----	10k	----
3796	560R	1k	5k6
5705	----	X	X
5708	X	----	----
3756	----	----	10k
3757	10k	10k	----
3762	10k	----	10k

■ NOT USED

1700	B1
1701	D7
1702-1	K20
1702-2	J20
1702-3	I20
1702-4	A15
1702-5	K20
1702-6	H20
1702-7	H20
1710	A2
2701	C10
2702	C10
2703	C9
2704	C10
2705	D8
2706	A5
2707	C11
2708	C12
2709	I2
2710	I2
2711	H2
2712	H3
2713	I3
2714	I4
2715	I4
2716	K5
2717	L4
2718	K3
2719	I15
2720	K15
2721	C17
2722	C18
2723	J1
2724	J20
2725	K20
2731	I7
2732	J9
2733	K9
2741	K7
2750	E3
2751	F7
2752	G7
2753	G7
2754	E3
2755	F7
2762	L16
2770	H13
2771	J10
2772	I11
2773	J11
2774	J11
2775	J9
2776	I10
2777	J10
2778	J12
2779	H13
2780	I11
2781	J14
2782	H16
2783	I17
2786	J12
2787	K14
2788	J16
2789	K17
2790	B18
2792	B15
2793	K15
2794	J15
3701	C4
3702	B10
3703	B2
3704	C4
3705	A6
3706	A6
3707	A6
3708	B6
3709	B5
3710	B6
3711	E11
3712	E10
3713	E11
3714	E9
3715	E9
3716	D12
3717	B9
3718	B9
3719	J1
3720	K2
3721	L3
3722	M4
3723	L4
3724	M4
3726	M4
3727	J5
3728	J5
3729	I3
3730	I2
3731	I3
3732	I8
3733	J8
3734	I8
3735	J8
3736	H3
3737	J6
3738	K6
3739	I19
3740	B16
3741	C16
3742	J8
3743	K8
3744	J8
3745	K8
3746	C17
3747	I18
3748	I15
3749	K15
3750	D3
3751	J18
3752	K18
3753	G7
3754	G7
3755	F7
3756	F3
3757	F4
3758	F2
3759	F2
3760	K18
3761	F10
3762	F3
3763	F2
3771	J10
3772	J11
3775	J9
3776	J10
3778	K14
3779	I14
3780	I14
3781	I15
3782	I16
3783	I17
3784	J19
3786	K14
3787	J15
3788	J16
3789	K17
3790	K19
3792	J17
3793	K17
3794	L4
3795	D6
3796	M20
4701	J19
4706	M20
5701	C12
5702	I7
5703	K7
5704	F4
5705	B2
5706	B5
5707	B10
5708	C2
6701	B8
6702	E2
6703	G7
6704	I18
6705	C18
7701	D10
7702	I1
7703	M3
7704	G6
7705	I8
7706	K8
7707	B6
7708	F5
7709	I12
7710-A	I16
7710-B	K16
7711	C18
7712	B17
7713	C16
7714	A18
7715	J19
7716	L19
7717	F9
7718	D7
7719	L18
7720	J18
F100	B2
F101	B5
F102	B11
F103	B9
F104	C8
F105	C9
F106	C3
F107	D9
F108	D3
F109	B18
F110	B17
F111	B15
F112	D4
F113	D4
F114	D10
F115	C18
F116	F6
F117	H19
F118	H20
F119	I16
F120	I9
F121	I20
F122	I9
F123	J6
F124	K6
F125	J20
F126	J16
F127	K20
F128	K20
F129	K4
F130	K4
F131	I3
F132	E6
F133	E6
F134	E6
F135	E6
F136	E6
F137	F6
F138	M19
F139	M20
F140	M20
F141	A2
F150	C16
F151	G8

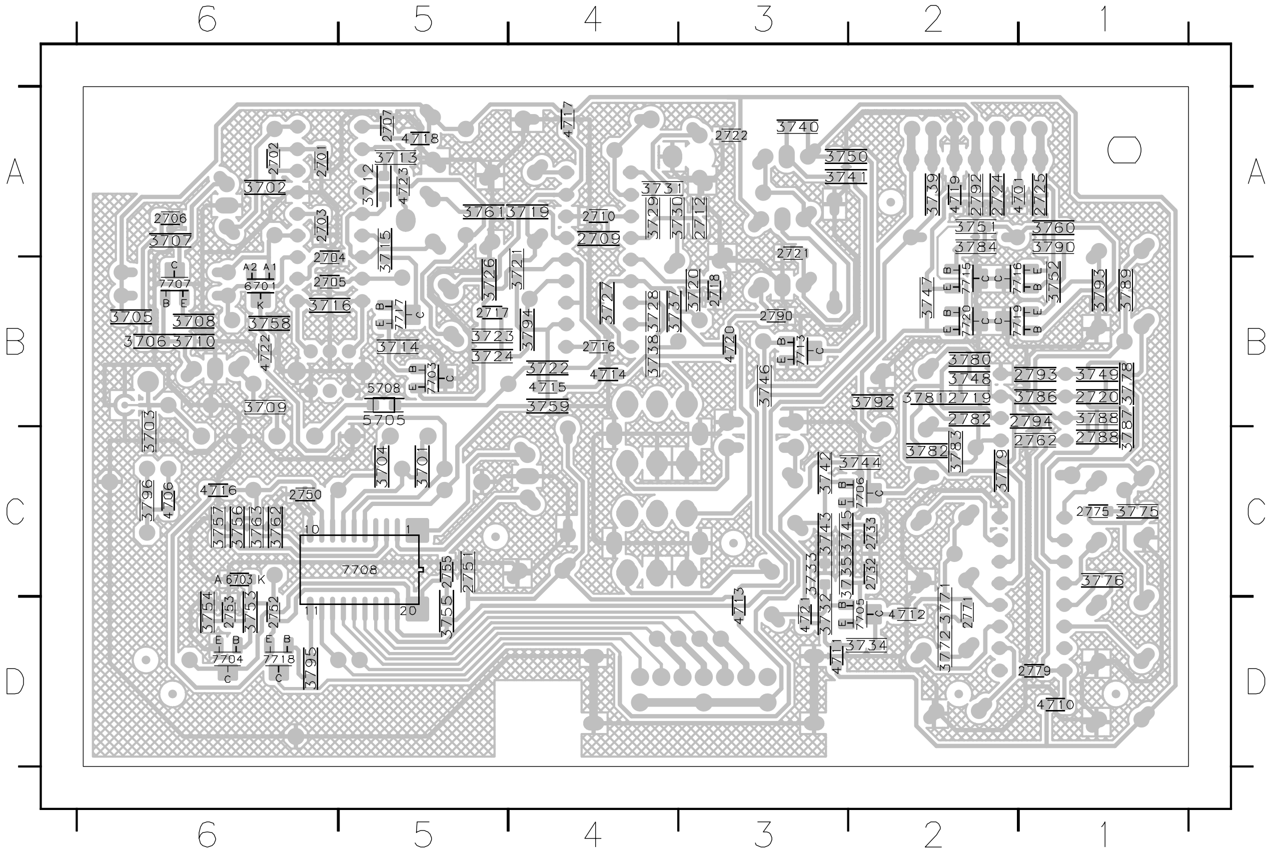
Layout Wreless Surround Receiver (Top View)


1
2
3
4
5
6
A
B
C
D
PHILIPS
ITC Leuven
Interleuvenlaan 76
B-3001 Leuven
Belgium
UL mark
3104 213 3500.1
3104 217 06050
RECEIVER MG98
By: A. Tonbeur
Layout: L. Hoesendonck
99-02-25
CH1
CH7
TXT
U7
U8
U10
U11
U12
1700
1701
1702
1710
2708
2711
2713
2714
2715
2723
2741
2754
2772
2773
2774
2776
2777
2778
2780
2786
2787
2789
3711
3717
3718
3736
5701
5702
5703
5704
5706
5707
6702
6704
6705
7701
7702
7709
7710
7711
7712
7714
9701
9702
9703

1700	B6
1701	D3
1702	A2
1710	B5
2708	A5
2711	A3
2713	A4
2714	A5
2715	B4
2723	B5
2731	C3
2741	C3
2754	D4
2770	D1
2772	C2
2773	D2
2774	C2
2776	C1
2777	D1
2778	C1
2780	D2
2781	B2
2783	C2
2786	D1
2787	B1
2789	A1
3711	B5
3717	A6
3718	B6
3736	A4
5701	B5
5702	D4
5703	B4
5704	B4
5706	B6
5707	A6
6702	C4
6704	A2
6705	A2
7701	A6
7702	B4
7709	D1
7710	B1
7711	A3
7712	A3
7714	B3
9701	C3
9702	C3
9703	C2

CL 96532042_051.eps
020699

Layout Wreless Surround Receiver (Bottom View)


6
5
4
3
2
1
A
B
C
D
7708
6701
6703
5705
5708
7704
7707
3796
3703
3705
3706
3710
3708
3758
3709
3776
3775
4710
2779

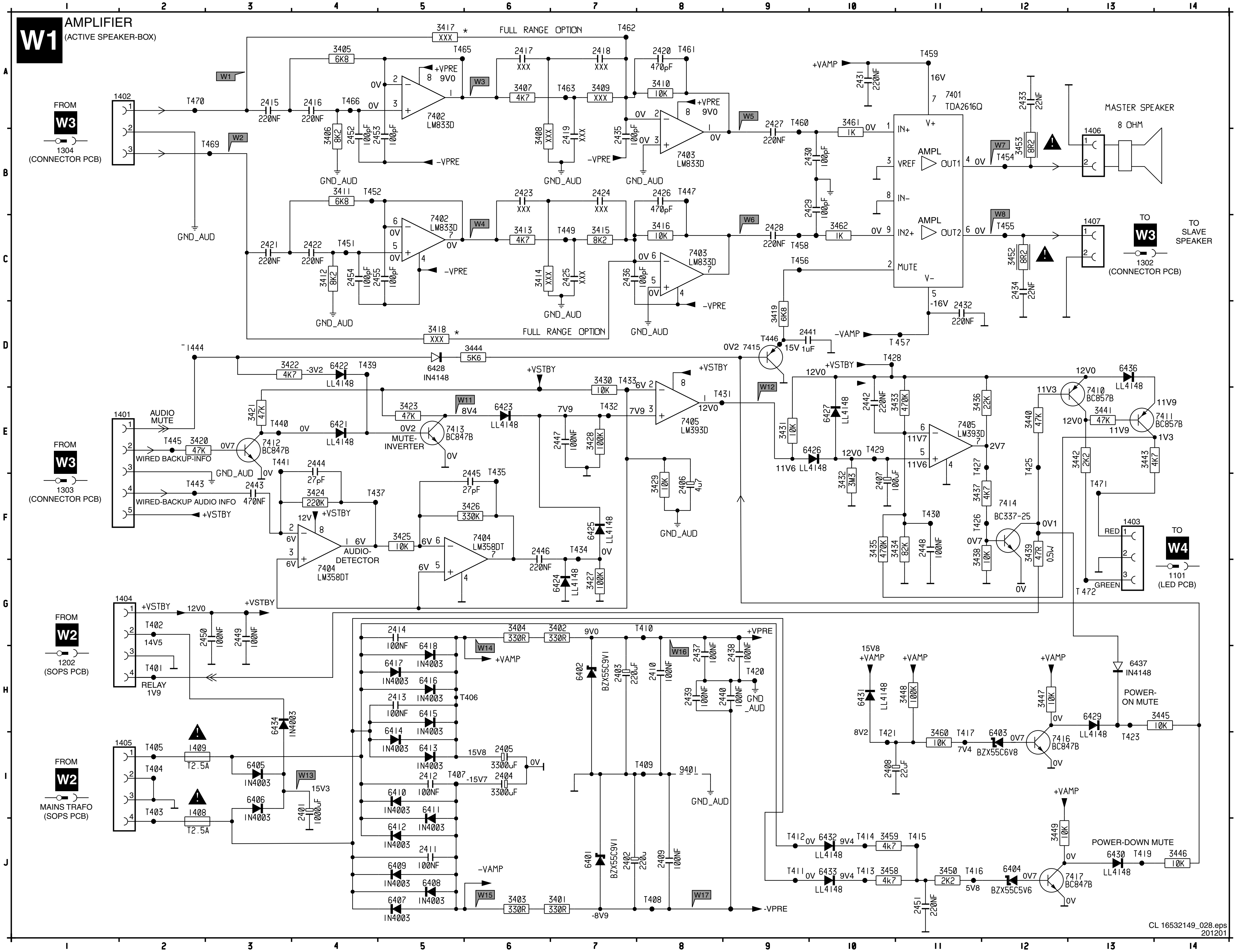
2701	A6
2702	A6
2703	A6
2704	A5
2705	B5
2706	A6
2707	A5
2709	A4
2710	A4
2712	A3
2716	B4
2717	B5
2718	B3
2719	B2
2720	B1
2721	A3
2722	A3
2724	A2
2725	A1
2732	C2
2733	C2
2750	C6
2751	C5
2752	D6
2753	C6
2755	C5
2762	C1
2771	D2
2775	C1
2779	D1
2782	C2
2788	C1
2790	B3
2792	A2
2793	B1
2794	B1
3701	C5
3702	A6
3703	C6
3704	C5
3705	B6
3706	B6
3707	A6
3708	B6
3709	B6
3710	B6
3712	A5
3713	A5
3714	B5
3715	B5
3716	B6
3719	A4
3720	B4
3721	B4
3722	B4
3723	B5
3724	B5
3726	B5
3727	B4
3728	B4
3729	A4
3730	A3
3731	A4
3732	D3
3733	C3
3734	D2
3735	C3
3737	B3
3738	B4
3739	A2
3740	A3
3741	A2
3742	C3
3743	C3
3744	C2
3745	C3
3746	B3
3747	B2
3748	B2
3749	B1
3750	A3
3751	A2
3752	B1
3753	C6
3754	D6
3755	D5
3756	C6
3757	C6
3758	B6
3759	B4
3760	A1
3761	A5
3762	C6
3763	C6
3771	D2
3772	D2
3775	C1
3776	C1
3778	B1
3779	C1
3780	B2
3781	B2
3782	C2
3783	C2
3784	A2
3786	B2
3787	C1
3788	B1
3789	B1
3790	A1
3792	B3
3793	B1
3794	B4
3795	D6
3796	C6
4701	A2
4706	C6
4710	D1
4711	D3
4712	D2
4713	D3
4714	B4
4715	B4
4716	C6
4717	A4
4718	A5
4719	A2
4720	B3
4721	D3
4722	B6
4723	A5
5705	B5
5708	B5
6701	A6
6703	C6
7703	B5
7704	D6
7705	D2
7706	C2
7707	A6
7708	D5
7713	B3
7715	B2
7716	B2
7717	B5
7718	D6
7719	B1
7720	B2

CL 96532042_052.eps
191201

Personal Notes:

Personal Notes:

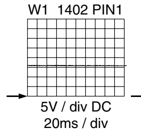
Active Speaker Box: Amplifier


W1
AMPLIFIER
(ACTIVE SPEAKER-BOX)
FROM W3 1304 (CONNECTOR PCB)
FROM W3 1303 (CONNECTOR PCB)
FROM W2 1202 (SOPS PCB)
FROM W2 MAINS TRAFO (SOPS PCB)
TO W3 1302 (CONNECTOR PCB)
TO SLAVE SPEAKER
TO W4 1101 (LED PCB)
MASTER SPEAKER 8 OHM
FULL RANGE OPTION
7401 TDA2616Q
IN+ IN2+ IN- VREF MUTE V+ V- OUT1 OUT2 AMPL
7402 LM833D
7403 LM833D
7404 LM358DT
7405 LM393D
AUDIO MUTE
WIRED BACKUP-INFO
WIRED-BACKUP AUDIO INFO
AUDIO-DETECTOR
MUTE-INVERTER
RELAY 1V9
POWER-ON MUTE
POWER-DOWN MUTE
+VAMP
-VAMP
+VPRE
-VPRE
+VSTBY
GND_AUD
RED
GREEN
1401 1402 1403 1404 1405 1406 1407
1408 T2.5A
1409 T2.5A
7410 BC857B
7411 BC857B
7412 BC847B
7413 BC847B
7414 BC337-25
7415
7416 BC847B
7417 BC847B
6401 BZX55C9V1
6402 BZX55C9V1
6403 BZX55C6V8
6404 BZX55C5V6
1 2 3 4 5 6 7 8 9 10 11 12 13 14
A B C D E F G H I J

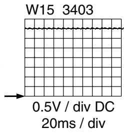
CL 16532149_028.eps
201201

1401	E2	6410	I5
1402	A2	6411	I5
1403	F13	6412	I5
1404	G2	6413	I5
1405	I2	6414	J5
1406	B13	6415	H5
1407	C13	6416	H5
1408	J2	6417	H5
1409	I2	6418	H5
2401	I4	6421	E4
2402	J7	6422	D4
2403	H7	6423	E6
2404	I6	6424	G7
2405	I6	6425	F7
2406	F8	6426	E10
2407	F10	6427	E10
2408	I11	6429	H13
2409	J8	6430	J13
2410	H8	6431	H10
2411	J5	6432	J10
2412	I5	6433	J10
2413	H5	6434	H3
2414	G5	6436	D13
2415	A3	7401	A11
2416	A4	7402	A5
2417	A6	7403	C8
2418	A7	7404	F4
2419	B7	7405	E11
2420	A8	7410	E13
2421	C3	7411	E13
2422	C4	7412	E3
2423	B6	7413	E5
2424	B7	7414	F12
2425	C7	7415	D9
2426	B8	7416	I12
2427	B9	7417	J12
2428	C9	9401	I8
2429	C10	T401	H2
2430	B10	T402	G2
2431	A10	T403	J2
2432	D11	T404	I2
2433	A12	T405	I2
2434	C12	T406	H5
2435	B7	T407	I5
2436	C7	T408	J8
2437	H8	T409	I8
2438	H9	T410	G8
2439	H8	T411	J9
2440	H9	T412	J9
2441	D10	T413	J10
2442	E10	T414	J10
2443	F3	T415	J11
2444	E4	T416	J12
2445	F6	T417	I11
2446	F6	T419	J13
2447	E7	T420	H9
2448	F11	T421	I10
2449	G3	T423	H13
2450	G3	T425	E12
2451	J11	T426	F12
2452	B4	T427	E12
2453	B5	T428	D10
2454	C4	T429	E10
2455	C5	T430	F11
3401	J7	T431	E8
3402	G7	T432	E7
3403	G7	T433	D7
3404	G6	T434	F7
3405	A4	T435	F6
3406	B4	T437	F4
3407	A6	T439	D4
3408	B6	T440	E3
3409	A7	T441	E3
3410	A8	T443	F2
3411	B4	T444	D2
3412	C4	T445	E2
3413	C6	T446	D9
3414	C6	T447	B8
3415	C7	T449	C7
3416	C8	T451	C4
3417	A5	T452	B4
3418	D5	T454	B12
3420	E2	T455	C12
3421	E3	T456	C9
3422	D3	T457	D11
3423	E5	T458	C9
3424	F4	T459	A11
3425	F5	T460	B9
3426	F6	T461	A8
3427	G7	T462	A7
3428	E7	T463	A7
3429	F8	T465	A5
3430	D7	T466	A4
3431	E9	T469	B3
3432	F10	T470	A2
3433	E11	T471	F13
3434	F11	T472	G13
3435	F10		
3436	E12		
3437	F12		
3438	F12		
3439	F12		
3440	E12		
3441	E13		
3442	E13		
3443	E13		
3445	H14		
3446	J14		
3447	H12		
3448	H11		
3449	J12		
3450	J11		
3452	C12		
3453	B12		
3458	J11		
3459	J11		
3460	I11		
3461	B10		
6401	J7		
6402	H7		
6403	I12		
6404	J12		
6405	I3		
6406	I3		
6407	J5		
6408	J5		
6409	J5		

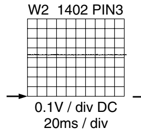
W1 1402 PIN1



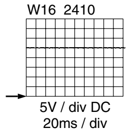
W15 3403



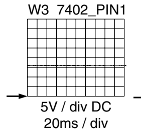
W2 1402 PIN3



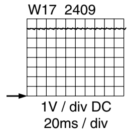
W16 2410



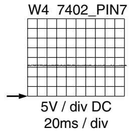
W3 7402_PIN1



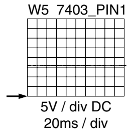
W17 2409



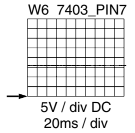
W4 7402_PIN7



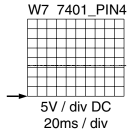
W5 7403_PIN1



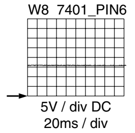
W6 7403_PIN7



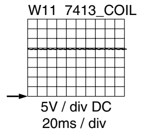
W7 7401_PIN4



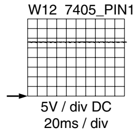
W8 7401_PIN6



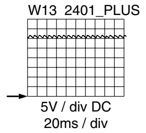
W11 7413_COIL



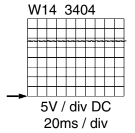
W12 7405_PIN1



W13 2401_PLUS



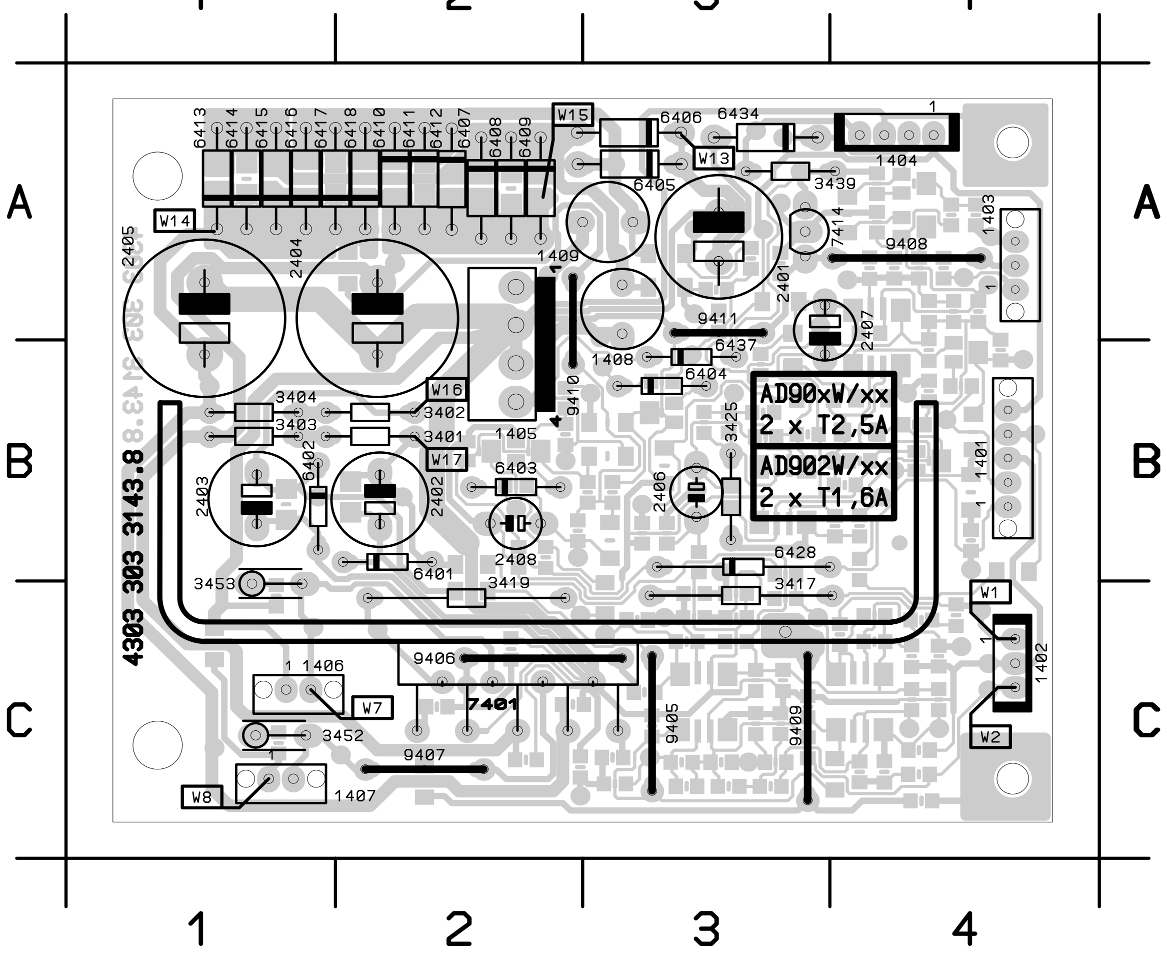
W14 3404



Layout Speaker Box: Amplifier (W1)

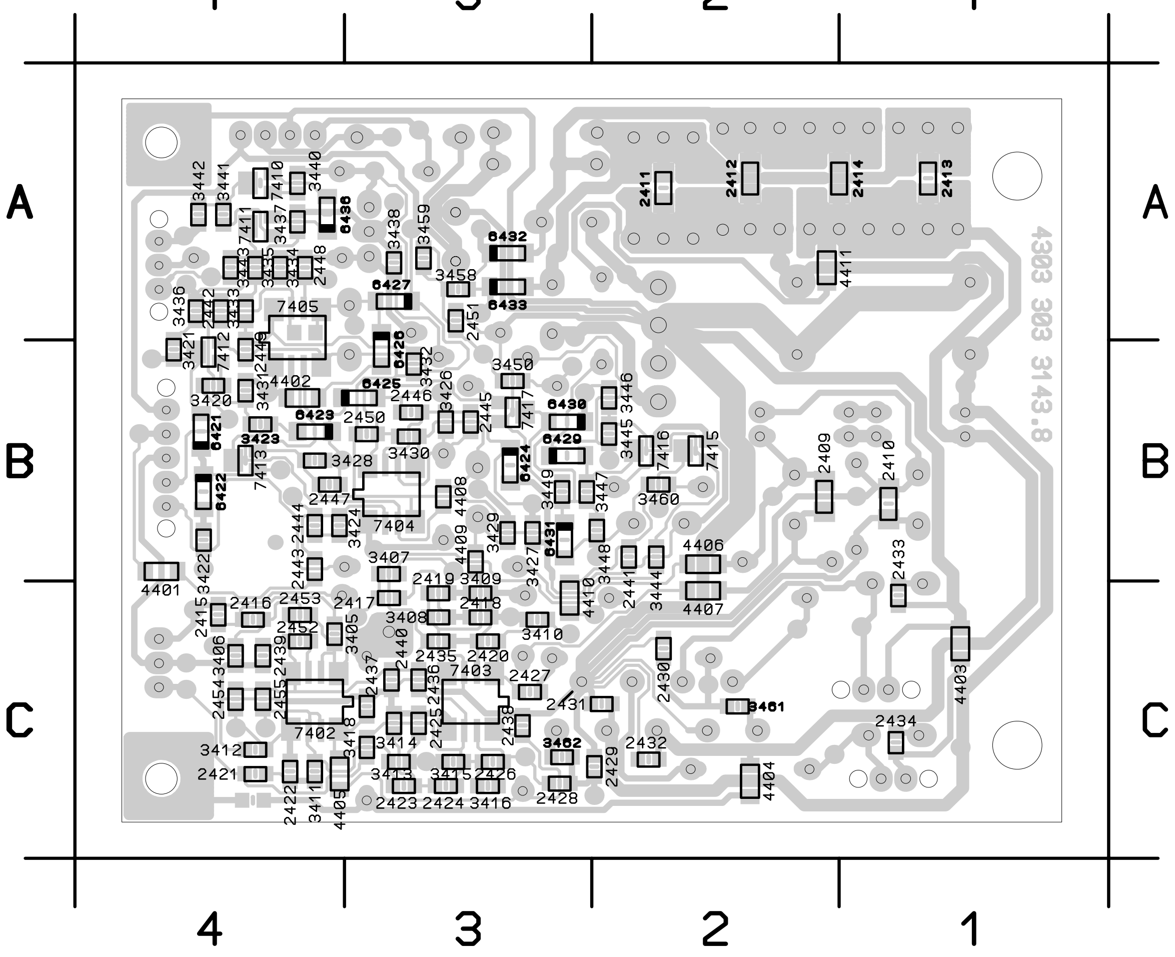
Top View

1401	B4	2401	A3	3402	B1	6401	B2	6410	A2	6428	B3	9409	C3
1402	C4	2402	B2	3403	B1	6402	B1	6411	A2	6434	A3	9410	B2
1403	A4	2403	B1	3404	B1	6403	B2	6412	A2	6437	B3	9411	A3
1404	A4	2404	B2	3417	C4	6404	B3	6413	A1	7401	C2		
1405	B2	2405	B1	3419	C2	6405	A2	6414	A1	7414	A3		
1406	C1	2406	B3	3425	B3	6406	A2	6415	A1	9405	C3		
1407	C1	2407	A3	3439	A3	6407	A2	6416	A1	9406	C2		
1408	A3	2408	B2	3452	C1	6408	A2	6417	A1	9407	C2		
1409	A2	3401	B1	3453	C1	6409	A2	6418	A2	9408	A4		


1
2
3
4
A
B
C
AD90xW/xx
2 x T2,5A
AD902W/xx
2 x T1,6A
4303 303 3143.8
W1
W2
W7
W8
W13
W14
W15
W16
W17
1401
1402
1403
1404
1405
1406
1407
1408
1409
7401
7414

Bottom View

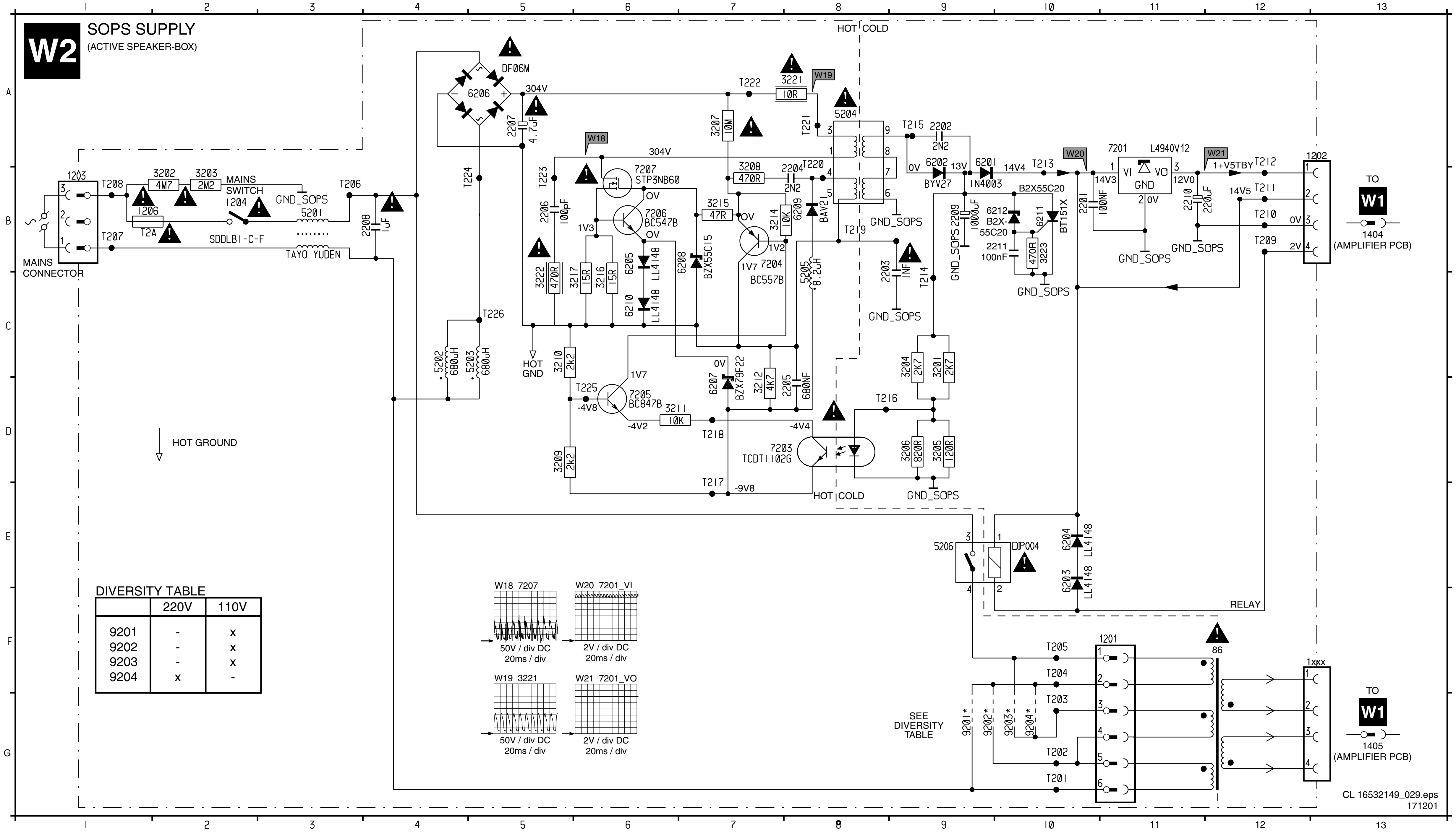
2409	B2	2428	C3	2447	B4	3415	C3	3437	A4	4402	B4	6431	B3
2410	B1	2429	C2	2448	A4	3416	C3	3438	A3	4403	C1	6432	A3
2411	A2	2430	C2	2449	B4	3418	C3	3440	A4	4404	C2	6433	A3
2412	A2	2431	C2	2450	B3	3420	B4	3441	A4	4405	C4	6436	A4
2413	A1	2432	C2	2451	A3	3421	B4	3442	A4	4406	B2	7402	C4
2414	A1	2433	C1	2452	C4	3422	B4	3443	A4	4407	C2	7403	C3
2415	C4	2434	C1	2453	C4	3423	B4	3444	B2	4408	B3	7404	B3
2416	C4	2435	C3	2454	C4	3424	B4	3445	B2	4409	B3	7405	A4
2417	C3	2436	C3	2455	C4	3426	B3	3446	B2	4410	C3	7410	A4
2418	C3	2437	C3	3405	C4	3427	B3	3447	B3	4411	A2	7411	A4
2419	C3	2438	C3	3406	C4	3428	B4	3448	B2	6421	B4	7412	B4
2420	C3	2439	C4	3407	B3	3429	B3	3449	B3	6422	B4	7413	B4
2421	C4	2440	C3	3408	C3	3430	B3	3450	B3	6423	B4	7415	B2
2422	C4	2441	B2	3409	C3	3431	B4	3458	A3	6424	B3	7416	B2
2423	C3	2442	A4	3410	C3	3432	B3	3459	A3	6425	B3	7417	B3
2424	C3	2443	B4	3411	C4	3433	A4	3460	B2	6426	B3	9401	C3
2425	C3	2444	B4	3412	C4	3434	A4	3461	C2	6427	A3		
2426	C3	2445	B3	3413	C3	3435	A4	3462	C3	6429	B3		
2427	C3	2446	B3	3414	C3	3436	A4	4401	B4	6430	B3		


4
3
2
1
A
B
C
4303 303 3143.8
7402
7403
7404
7405

CL 16532149_055.eps
201201

Active Speaker Box: SOPS Supply

1201	F11
1202	B13
1203	A1
1204	B3
1206	B2
1209	B10
2201	B11
2202	A9
2203	B9
2204	B8
2205	D8
2206	B6
2207	A5
2208	B4
2209	B9
2210	B12
2211	C10
3201	C9
3202	B2
3203	B2
3204	C9
3205	D9
3206	D9
3207	A7
3208	B7
3209	D6
3210	C6
3211	D7
3212	D8
3214	B8
3215	B7
3216	C6
3217	C6
3219	B5
3220	B5
3221	A8
3222	C6
3223	B10
0086	F12
5201	B3
5202	C5
5203	C5
5204	A8
5205	B8
5206	E10
6201	A10
6202	A9
6203	E11
6204	E11
6205	B6
6206	A5
6207	D7
6208	B7
6209	B8
6210	C6
6211	B10
6212	B10
7201	A11
7203	D8
7204	B8
7205	D6
7206	B6
7207	B6
9201	G10
9202	G10
9203	G10
9204	G10
T201	G10
T202	G10
T203	G10
T204	F10
T205	F10
T206	A4
T207	A1
T208	A1
T209	B12
T210	B12
T211	B12
T212	B12
T213	B10
T214	C9
T215	A9
T216	D9
T217	E7
T218	T218
T219	B8
T220	B8
T221	A8
T222	A7
T223	B6
T224	B5
T225	D6
T226	C5


W2
SOPS SUPPLY
(ACTIVE SPEAKER-BOX)
HOT
COLD
MAINS CONNECTOR
MAINS SWITCH
1203
1204
SDDLBI-C-F
T208
T207
3202 4M7
3203 2M2
T206 T2A
GND_SOPS
5201
TAYO YUDEN
2208 1uF
DF06M
6206
304V
2207 4.7uF
T224
T223
T226
5202 680uH
5203 680uH
HOT GND
W18
7207 STP3NB60
7206 BC547B
2206 100pF
1V3
0V
3222 470R
3217 15R
3216 15R
6205 LL4148
6210 LL4148
6208 BZX55C15
3215 47R
3214 10K
6209 BAV21
7204 BC557B
1V7
1V2
3210 2k2
T225
7205 BC847B
-4V8
-4V2
3211 10K
T218
3209 2k2
T217
-9V8
6207 BZX79F22
3212 4K7
2205 680NF
-4V4
7203 TCDT1102G
T222
3221 10R
W19
3207 10M
3208 470R
2204 2N2
T220
T221
5204
5205 8.2uH
T219
2203 1NF
T214
T215
2202 2N2
6202 BYV27
13V
6201 1N4003
14V4
T213
2209 1000uF
6212 B2X-55C20
2211 100nF
3223 470R
6211 BT151X
B2X55C20
3204 2K7
3201 2K7
T216
3206 820R
3205 120R
W20
7201 L4940V12
VI VO GND
14V3
12V0
2201 100NF
2210 220uF
W21
+V5TBY
T212
14V5
T211
T210
T209
1202
TO W1
1404 (AMPLIFIER PCB)
5206
DIP004
6204 LL4148
6203 LL4148
RELAY
1201
86
T205
T204
T203
T202
T201
9201*
9202*
9203*
9204*
SEE DIVERSITY TABLE
1xxx
1405 (AMPLIFIER PCB)
HOT GROUND
W18 7207
50V / div DC
20ms / div
W20 7201_VI
2V / div DC
20ms / div
W19 3221
50V / div DC
20ms / div
W21 7201_VO
2V / div DC
20ms / div
CL 16532149_029.eps
171201

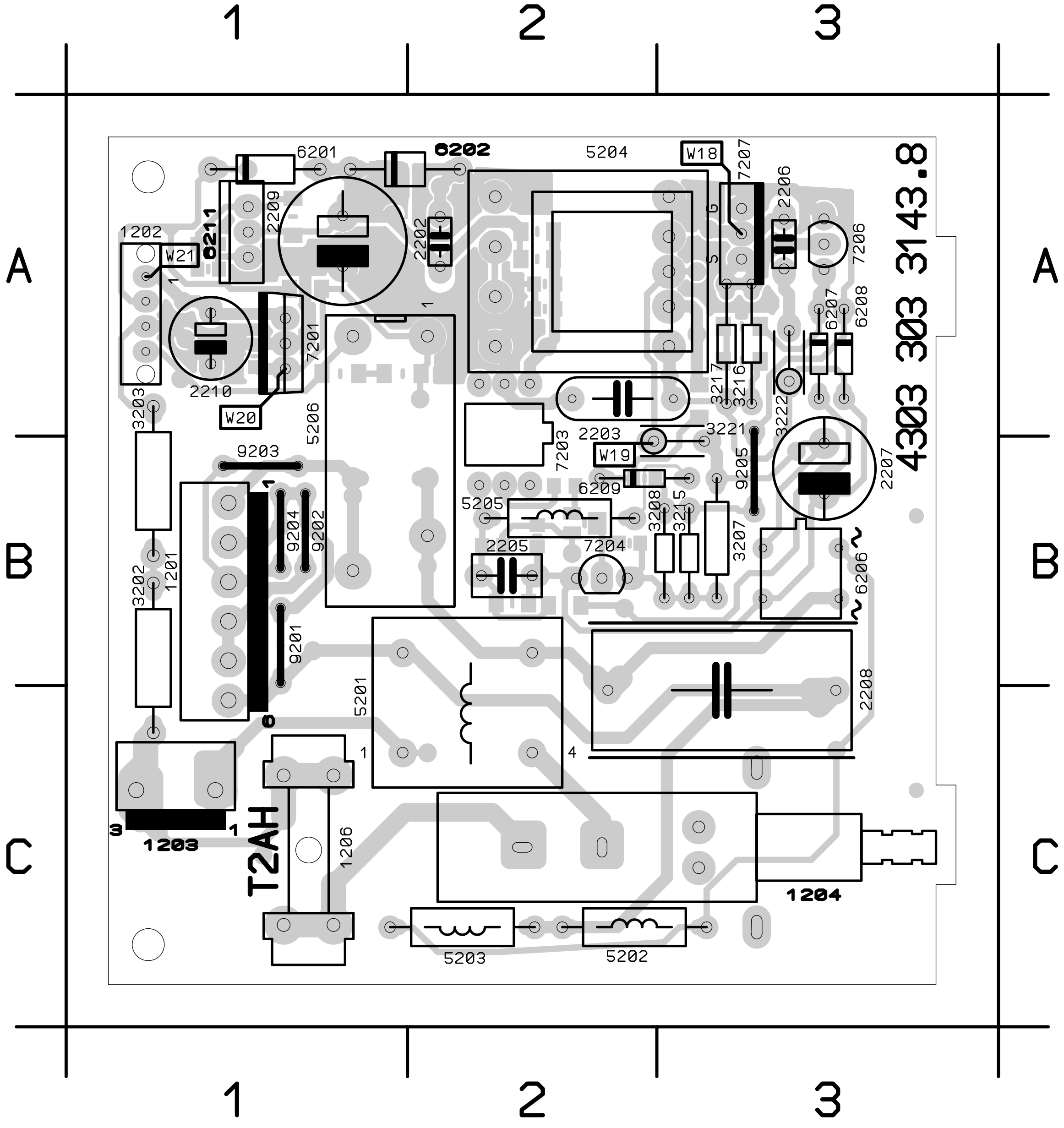
DIVERSITY TABLE

	220V	110V
9201	-	x
9202	-	x
9203	-	x
9204	x	-

Layout Speaker Box: SOPS Supply (W2)

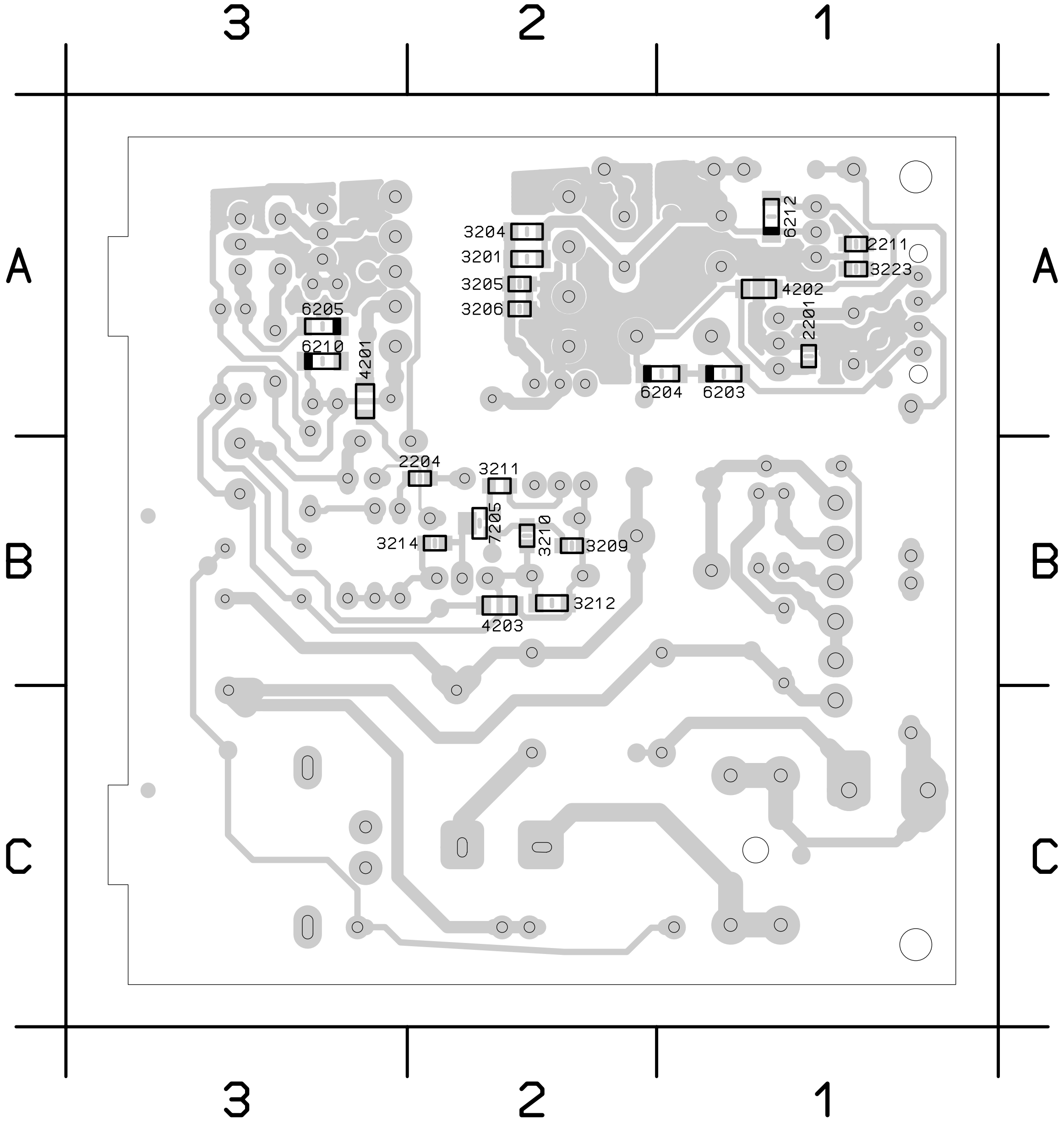
Top View

1201	B1
1202	A1
1203	C1
1204	C2
1206	C1
2202	A2
2203	A2
2205	B2
2206	A3
2207	B3
2208	C3
2209	A1
2210	A1
3202	C1
3203	B1
3207	B3
3208	B3
3215	B3
3216	A3
3217	A3
3219	C3
3220	B3
3221	B2
3222	A3
5201	C2
5202	C3
5203	C3
5204	A2
5205	B2
5206	B1
6201	A1
6202	A2
6206	B3
6207	A3
6208	A3
6209	B3
6211	A1
7201	A1
7203	A2
7204	B2
7206	A3
7207	A3
9201	C1
9202	B1
9203	B1
9204	B1
9205	B3


1
2
3
A
B
C
6201
6202
5204
W18
7207
2206
7206
1202
W21
6211
2209
2202
4303 303 3143.8
2210
7201
W20
3217
3216
3222
6207
6208
3203
9203
5206
2203
3221
7203
W19
9205
2207
6209
5205
3208
3215
3207
2205
7204
6206
3202
1201
9204
9202
9201
5201
2208
1203
T2AH
1206
1204
5203
5202

Bottom View

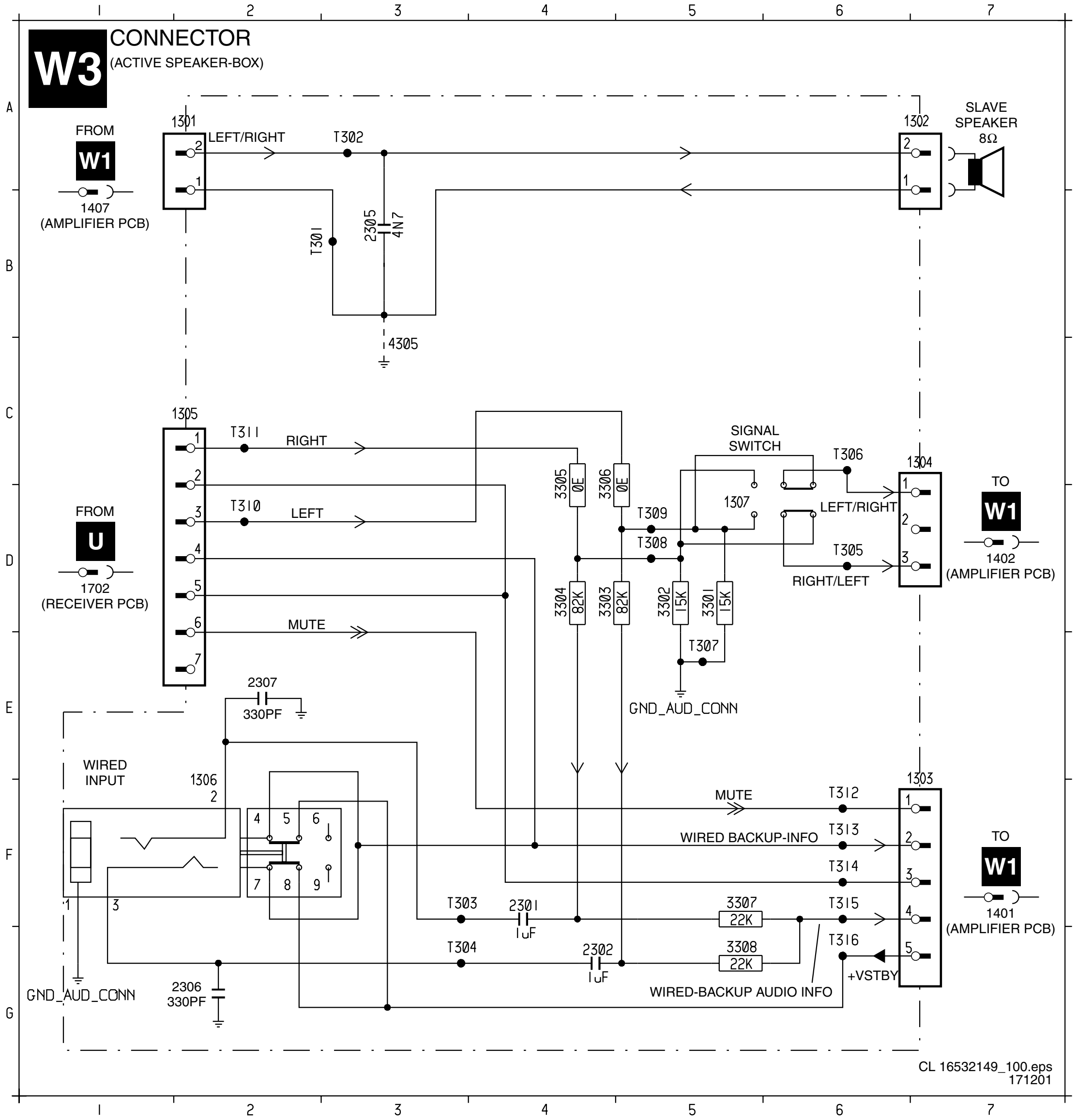
2201	A1
2204	B2
2211	A1
3201	A2
3204	A2
3205	A2
3206	A2
3209	B2
3210	B2
3211	B2
3212	B2
3214	B2
3223	A1
4201	A3
4202	A1
4203	B2
6203	A1
6204	A1
6205	A3
6210	A3
6212	A1
7205	B2


3
2
1
A
B
C
3204
3201
3205
3206
6212
2211
3223
4202
6205
6210
4201
2201
6204
6203
2204
3211
7205
3210
3214
3209
4203
3212

CL 16532149_056.eps
201201

Active Speaker Box: Connector

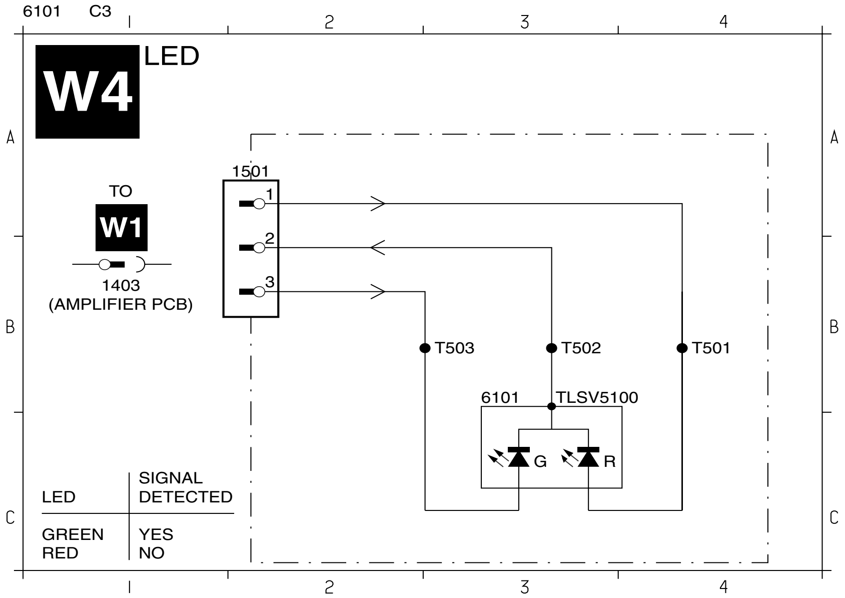
1301	A 7	1305	D2	2302	G4	3302	D5	3306	C5	T302	A3	T306	T310	D2	T314	F6
1302	A2	1306	F2	2303	B3	3303	D4	3307	F5	T303	F3	T307	T311	C2	T315	F6
1303	F7	1307	D5	2304	B3	3304	D4	3308	G5	T304	G3	T308	T312	F6	T316	G6
1304	D7	2301	F4	3301	D5	3305	C4	T301	B3	T305	D6	T309	T313	F6		


1
2
3
4
5
6
7
A
B
C
D
E
F
G
W3
CONNECTOR
(ACTIVE SPEAKER-BOX)
FROM
W1
1407
(AMPLIFIER PCB)
1301
2
1
LEFT/RIGHT
T302
T301
2305
4N7
4305
1302
2
1
SLAVE
SPEAKER
8Ω
1305
1
2
3
4
5
6
7
T311
RIGHT
T310
LEFT
MUTE
FROM
U
1702
(RECEIVER PCB)
3305
0E
3306
0E
3304
82K
3303
82K
3302
15K
3301
15K
T309
T308
T307
GND_AUD_CONN
SIGNAL
SWITCH
1307
T306
LEFT/RIGHT
T305
RIGHT/LEFT
1304
1
2
3
TO
W1
1402
(AMPLIFIER PCB)
2307
330PF
WIRED
INPUT
1306
2
4
5
6
7
8
9
1
3
GND_AUD_CONN
2306
330PF
MUTE
T312
WIRED BACKUP-INFO
T313
T314
T303
2301
1uF
3307
22K
T315
T304
2302
1uF
3308
22K
T316
+VSTBY
WIRED-BACKUP AUDIO INFO
1303
1
2
3
4
5
TO
W1
1401
(AMPLIFIER PCB)

CL 16532149_100.eps
171201

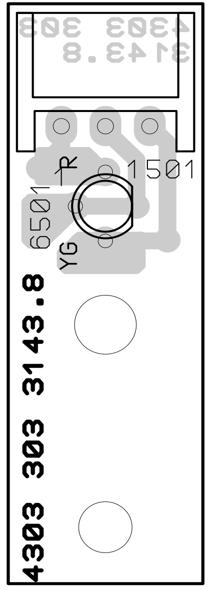
Active Speaker Box: LED

1501	A2
6101	C3


1
2
3
4
A
B
C
W4
LED
TO
W1
1403
(AMPLIFIER PCB)
1501
1
2
3
T503
T502
T501
6101
TLSV5100
G
R

LED	SIGNAL DETECTED
GREEN	YES
RED	NO

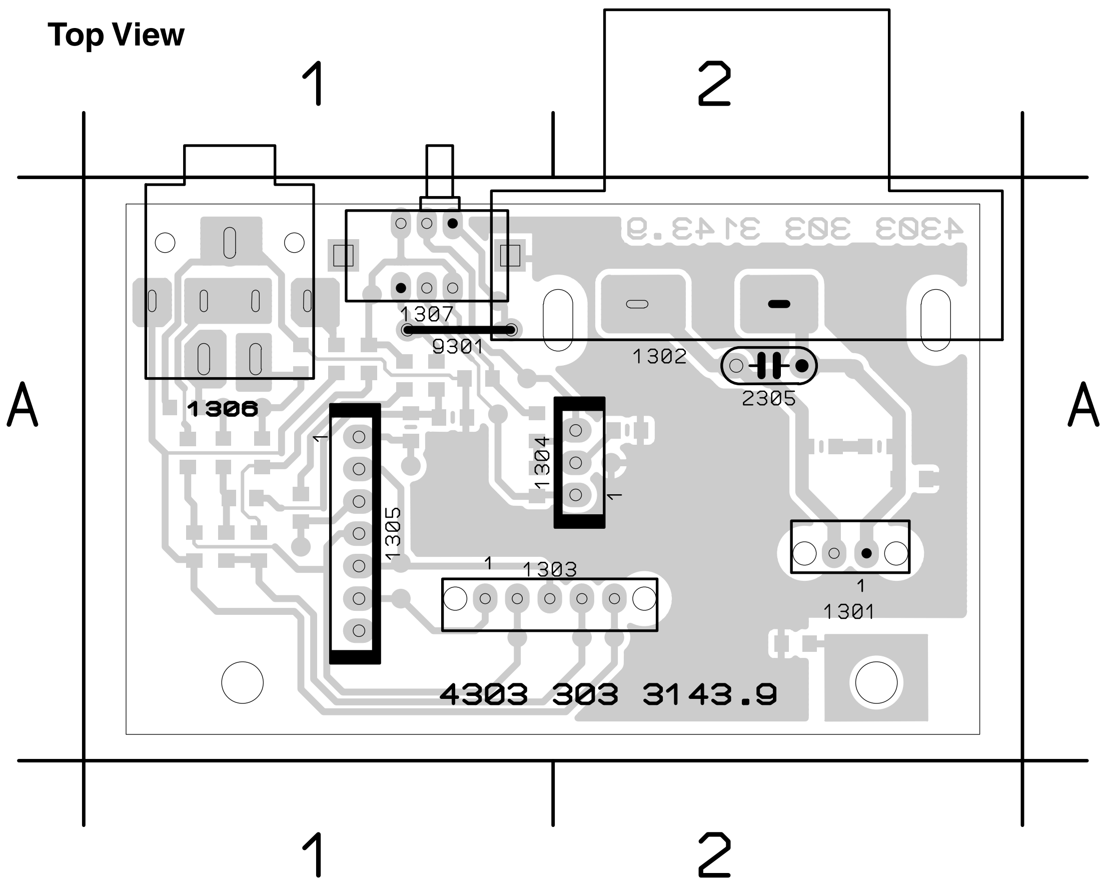
Layout Led Panel (Top View)


4303 303
3143.8
1501
R
6501
YG
4303 303 3143.8

CL 16532149_057.eps
201201

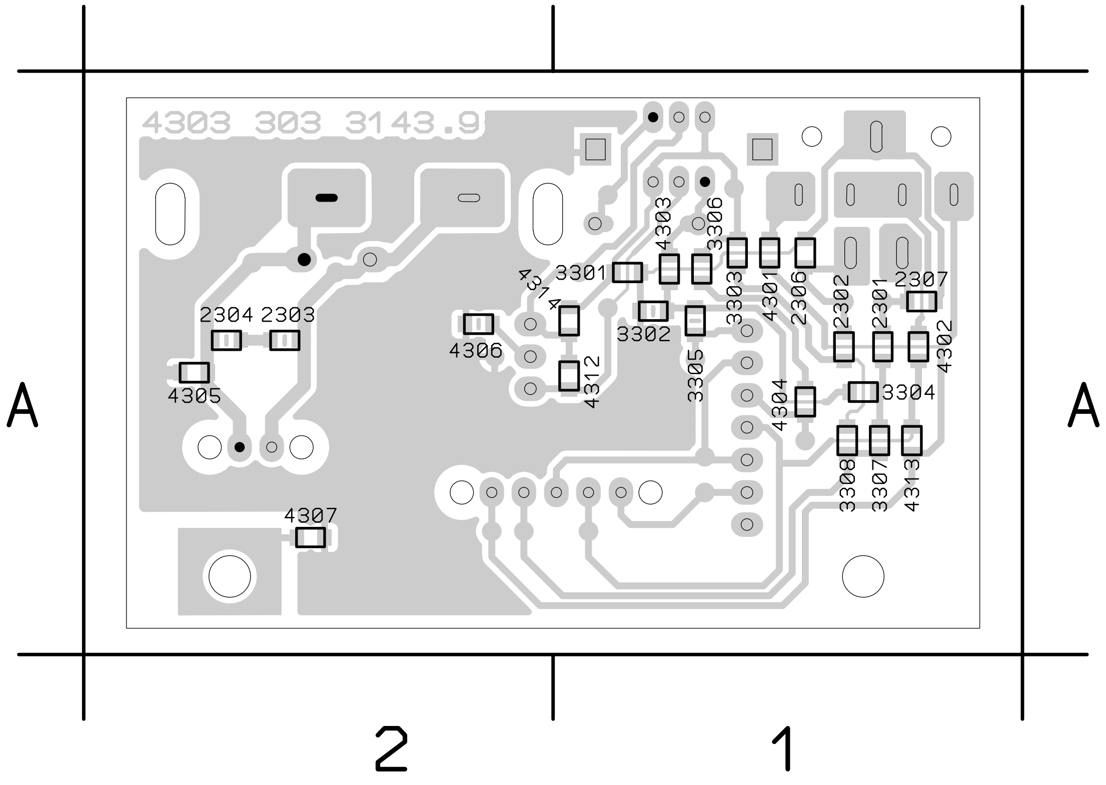
Layout Active Speaker Box: Connector (W3)

Top View


1
2
A
4303 303 3143.9
1307
9301
1302
2305
1306
1304
1
1305
1
1303
1
1301
4303 303 3143.9

1301	A2
1302	A2
1303	A1
1304	A2
1305	A1
1306	A1
1307	A1
2305	A2
9301	A1

Bottom View


2
1
A
4303 303 3143.9
3301
4314
4303
3306
3303
4301
2306
2302
2301
2307
4302
2304
2303
3302
4306
4305
3305
4312
4304
3304
3308
3307
4313
4307

2301	A1
2302	A1
2303	A2
2304	A2
2306	A1
2307	A1
3301	A1
3302	A1
3303	A1
3304	A1
3305	A1
3306	A1
3307	A1
3308	A1
4301	A1
4302	A1
4303	A1
4304	A1
4305	A2
4306	A2
4307	A2
4312	A1
4313	A1
4314	A1

CL 16532149_054.eps
201201

8. Electrical Alignments

Index of this chapter:
1. Introduction.
2. Option settings.
3. Hardware alignments.
4. Software alingnments.

Notes: The Service Default Mode (SDM) and Service Alignment Mode (SAM) are described in chapter 5. Menu navigation is done with the 'CURSOR UP, DOWN, LEFT or RIGHT' keys of the remote control transmitter.

8.1 Introduction

8.1.1 Start Conditions

Perform all electrical adjustments under the following conditions:
- Power supply voltage: 230 V_{AC}/50 Hz (± 10 %).
- Connect the set to the mains via an isolation transformer with low internal resistance.
- Allow the set to warm up for approximately 20 minutes.
- Measure the voltages and waveforms in relation to chassis ground (with the exception of the voltages on the primary side of the power supply).
- Caution: never use the cooling fins/plates as ground.
- Test probe: Ri > 10 MΩ, Ci < 20 pF.
- Use an isolated trimmer/screwdriver to perform the alignments.

Perform all electrical adjustments with the following start settings (for all CRTs):
- Set LIGHT SENSOR ‘off’ (set ACTIVE CONTROL to 'off' with the remote control).
- Set BRIGHTNESS to ‘23’ (via PICTURE menu, set indicator somewhat below the centre (= 32) point).
- Set COLOUR ENHANCEMENT to ‘off’ (via PICTURE menu).
- **Set DIGITAL OPTIONS to 'Pixel Plus' (via PICTURE menu), unless otherwise stated.**
- Set DYNAMIC CONTRAST to ‘off’ (via PICTURE menu).
- Set CATHODE DRIVE at ‘15’ (via SAM - Alignments - General - Drive - Cathode).

8.1.2 Adjustment Sequence

Use the following adjustment sequence:
1. Modules, units and PWBs.
2. Set the correct TV-set ‘options’.
3. Rough adjustment of ‘Vg2’ and ‘Focus’.
4. Rough adjustment of ‘Geometry’.
5. Accurate adjustment of ‘Vg2’ and ‘Focus’.
6. Rough adjustment of ‘Geometry’.
7. Software alignments (cut-off, cathode drive, peak white, white drive, etc).

8.1.3 Factory Default Settings

In case something goes wrong during the alignments, use the following **factory default** settings:
- Contrast = 48 (≈ 3/4 of scale).
- Colour = 33 (28"), 32 (32"), or 31 (36").
- Sharpness = 3.
- Colour Enhancement = On.
- Tint = Normal.
- Digital Options = Pixel Plus.
- Dynamic Contrast = Medium.

8.2 Option settings

The microprocessor communicates with a large number of I^2C ICs in the set. To ensure good communication and to make digital diagnosis possible, the microprocessor has to know which ICs to address. The presence/absence of these specific ICs (or functions) is made known via the option codes.

You can set the 'hardware related' options via the SAM: 'Alignments - Options' or 'Option Numbers' menu.
You can set the 'software related' options via the SAM: 'Dealer Options' menu .

Important:
- After you have changed the option(s), save them via the 'Store' command.
- The new option setting is only active after the TV is switched 'off' and 'on' again via the mains switch (the NVM is then read out again).

8.2.1 Options

Select this sub-menu to set the initialisation codes (= options) of theTV via text menu's.

Table 8-1

Menu-item	Subjects	Options	Physically in the set
Dual screen/PIP	Aux type	None	Dual Screen/PIP module not present.
		Video Dual Screen	Dual Screen module present
		PIP	PIP module present
	Text Dual Screen	Yes	Text Dual Screen present (only for 16:9 sets)
		No	Text Dual Screen not present
	Aux Headph. Sound(optional)	Yes	
		No	
Teletext/EPG	TXT	Yes	Feature enabled
		No	Feature disabled
	NextView present	Yes	Feature enabled
		No	Feature disabled
	NextView type	Flashram	Flash-RAM (IC7013 on SSP) present
		No Flashram	Flash-RAM (IC7013 on SSP) not present
Communication	Easylink Plus	Yes	Feature enabled
		No	Feature disabled
Picture Tube	CRT Type	4:3	4:3 picture tube
		16:9	16:9 picture tube
	CRT size	28 / 32 / 36 / 29 / 34	Screen size in inches
	Picture Rotation(only for 16:9)	Yes	Frame rotation circuitry (IC7440 on LSP) present
		No	Frame rotation circuitry (IC7440 on LSP) not present
	Dynamic focus	Yes	Dynamic focus picture tube present
		No	Dynamic focus picture tube not present
	One point control	Yes	Feature enabled
		No	Feature disabled
	Anti-moirÈ filter	Yes	Not used
		No	Not used
Video repro	Featurebox type	Eco	PROZONIC not present
		Prozonic	PROZONIC present
		Falconic	FALCONIC present
		1050i/1250i	Progressive scan mode
		Eagle	Pixel plus mode
	Split Screen	Yes	
		No	
	Field memories	2	
		3	
	Lightsensor	Yes	Feature enabled
		No	Feature disabled
	Combfilter	Yes	Feature enabled
		No	Feature disabled
	Auto scavem	Yes	Feature enabled
		No	Feature disabled
	Picnic AGC	Yes	In 'Normal' operation: Yes
		No	During 'Drive' alignments: No
	Signalling bits	Yes	Format recognised
		No	Format not recognised
Audio Repro	Dolby	None	
		Pro Logic	
		Digital	MCS panel present
	Rear speakers	Corded	Not valid
		Virtual	Not valid
		Cordless	Active surroundbox present
	Acoustic system	FL7	Not valid
		FL8	Not valid
		FL9 Monitor	Not valid
		FL9 DAS	Not valid
		FL11	Soft design with full range speakers at both sides
Miscellaneous	Heatsink Present	Yes	Heatsink present on CRT panel (diagram F)
		No	Heatsink not present on CRT panel (diagram F)

8.2.2 Option numbers

Select this sub-menu to set all options at once (expressed in two long numbers).
An option number (or 'option byte') represents several options. When you change these numbers directly, you can set all options very fast. All options are controlled via eight option numbers.

Example: Option numbers 32PW9767/12:

1. **05984 12568 03840 00016**
2. **12326 00001 00000 04358**

The first line indicates the hardware related options 1 to 4, the second line is reserved for the software related options. Every 5-digit number represents 16 bits (so maximum number is 65536, if all options are set).

Table 8-2

Option Byte	Bit	Option name	Settings (given in decimal values)		Option number
Hardware Option 1	0	Feature Box	0 = Eco	1 = PROZONIC	Sum of HW Option 1
	1		3 = FALCONIC (bit 0+1)	2 = 1050i/1250i	
	2			4 = Eagle	
	3	Comb Filter	0 = Off	8 = On	
	4	Auto Scavem	0 = Off	16 = On	
	5	Field Memory	0 = 2 Memories	32 = 3 Memories	
	6	Light Sensor	0 = Off	64 = On	
	8	PICNIC	0 = Off	256 = On	
	9	PICNIC AGC	0 = Off	512 = On	
	10	FALCONIC	0 = FALCONIC v1	1024 = FALCONIC v2	
	11	LNA	0 = Off	2048 = On	
	12	WSS	0 = Off	4096 = On	
	13	Time Constant	0 = Normal	8192 = Fast	
Hardware Option 2	1	Dolby ProLogic	0 = Off	2 = On	Sum of HW Option 2
	2	Virtual Rear Speakers	0 = Off	4 = On	
	3	Cordless Rear Speakers	0 = Off	8 = On	
	4	Dolby Digital	0 = Off	16 = On	
	8	P50 (Easylink +)	0 = Off	256 = On	
	12	EPG	0 = Off	4096 = On	
	13	EPG type	0 = Type 2	8192 = Type 2C3	
Hardware Option 3	0	EXT3	0 = Off	1 = On	Sum of HW Option 3
	1	EXT4	0 = Off	2 = On	
	4	Dual Screen	0 = Off	16 = PIP	
	5			32 = Dual Screen	
	6	TXT/EPG Dual Screen	0 = Off	64 = On	
	7	AUX Headph. Sound	0 = Off	128 = On	
	8	Aspect Ratio	0 = 4:3	256 = 16:9	
	9	Tilt	0 = Off	512 = On	
	10	DAF	0 = Off	1024 = On	
	11	One Point Control	0 = Off	2048 = On	
	12	Heat Sink	0 = Off	4096 = On	
	14	Home Cinema	0 = Off	16384 = On	
Hardware Option 4	2	China IF	0 = Off	4 = On	Sum of HW Option 4
	4	Teletext	0 = Off	16 = On	
	5	China Text	0 = Off	32 = On	
Software Option 1	0	Auto TV	0 = Off	1 = On	Sum of SW Option 1
	1	Auto Store Mode	0 = None	2 = PDC/VPS	
	2		6 = PDC/VPS/TXT Page	4 = TXT Page	
	4	Picture Mute	0 = Off	16 = On	
	5	Demo Mode	0 = Off	32 = On	
	6	Virgin Mode	0 = Off	64 = On	
	12	TXT Preference	0 = TOP	4096 = FLOF	
	13	TXT Region	0 = East	8192 = West	
Software Option 2	0	CTI	0 = Off	1 = On	Sum of SW Option 2
Software Option 3					Sum of SW Option 3
Software Option 4	0	Cabinet		1 = FL7	Sum of SW Option 4
	1		3 = FL9 DAS (bit 0+1)	2 = FL8	
	2		6 = FL11 (bit 1+2)	4 = FL9 Monitor	
	3				
	8	Picture Tube Size	0 = 28"	256 = 32"	
	9		768 = 29" (bit 8+9)	512 = 36"	
	10			1024 = 34"	
	11				

When all the correct options are set, the sum of the decimal values of each Option Byte (OB) will give the option number.

Note: When the EAROM is replaced, all options will require a re-setting. To be certain that the factory settings are reproduced exactly, you must set both option number lines. You can find the correct option numbers on a CRT sticker inside the TV set.

8.2.3 Dealer Options

Table 8-3

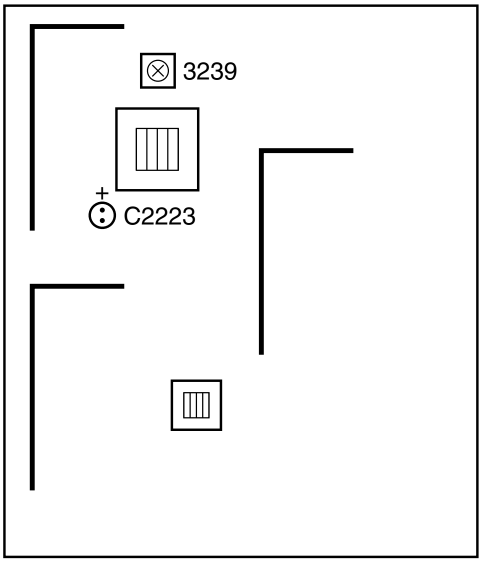
Name	Subjects	Options	Physically in set
Picture	CTI	Yes	CTI enabled
		No	CTI disabled
Personal	Blue Mute	Yes	Blue mute active, in case no picture detected
		No	Noise, in case of no picture detected
	Virgin Mode	Yes	TV starts up once with language selection menu, after mains switch on for the first time (virgin mode)
		No	TV does not starts up once with language selection menu, after mains switch on for the first time (virgin mode)
	Auto Store Mode	None	Autostore mode disabled (not in installation menu)
		PDC-VPS	Autostore mode via ATS (PDC/VPS) enabled
		TXT page	Autostore mode via ACI enabled
		PDC-VPS-TXT	Autostore mode via ACI or ATS enabled
	Demo Menu Enable	Yes	Demo menu enable
		No	Demo menu disable
	Auto TV	Yes	Auto TV mode enabled
		No	Auto TV mode disabled
Teletext	TXT Preference	TOP	Preference to TOP Teletext
		FLOF	Preference to FLOF Teletext
	East/West TXT	West	TXT characters for non -/58 sets
		East	TXT characters for -/58 sets

8.3 Hardware Alignments

8.3.1 Alignments on the Top Supply Panel (TSP)

+141 V (V_{BAT}) Supply Voltage

TSP (component side)



CL 16532149_075.eps
061201

Figure 8-1

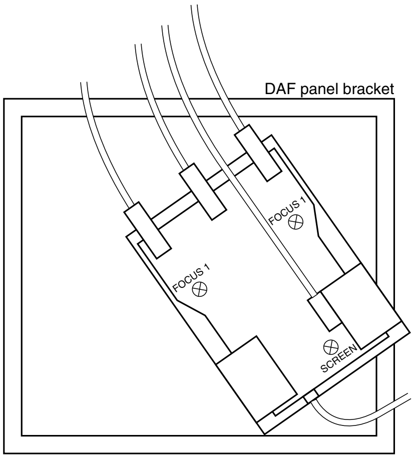
1. Switch the set 'off'.
2. Connect a voltmeter across C2223 (see also diagram B, $+V_{BAT}$).
3. Switch the set 'on'.
4. Use potentiometer R3239 (see figure above) to adjust the V_{BAT} supply voltage to +141 ± 0.5 V.

8.3.2 Alignments on the Large Signal Panel (LSP)

For the Focus and Vg2 alignment, see paragraph 8.3.3.

8.3.3 Alignments on the Double Astigmatic Focus (DAF) Panel

DAF Module



CL 06532016_017.eps
030300

Figure 8-2

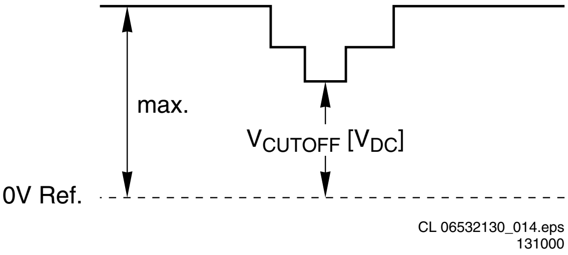
Vg2 Adjustment

Method 1 (without oscilloscope)
1. Activate the SAM.
2. Select 'Alignments'.

3. Select the 'General' sub-menu.
4. Set 'Vg2 Test Pattern' to 'On'
5. You will now get OSD feedback during Vg2 alignment.
6. First turn the Vg2 (= SCREEN) potmeter on the DAF-module (or LOT) to the left (see figure above)
7. OSD feedback will show 'Out high'.
8. Turn the Vg2 potmeter slowly clockwise until you read 'In low'. This is the correct value.

Method 2 (with oscilloscope)

Waveform Vg2 alignment



CL 06532130_014.eps
131000

Figure 8-3

In the frame-blanking period of the R, G and B signals (applied to the CRT), the 'HOP' video processor (IC7300) inserts a measuring pulse as reference for the Vg2 adjustment. See figure above.
Measure all three signals, and use the pulse with the highest DC-level for the Vg2 adjustment.

1. Go, via the MENU key, to the PICTURE menu, and set CONTRAST and BRIGHTNESS to ‘0’
   Service tip: First, write down the actual values so you can restore them after the alignment.
2. Activate the SDM (see chapter 5).
3. Connect the RF output of a pattern generator to the antenna input. Test pattern is a 'black' picture (blank screen on CRT without any OSD info) with a carrier frequency of 425.25 MHz.
4. Set the channel of the oscilloscope to 50 V/div and the time base to 0.2 ms. Trigger the scope external via a CVBS signal (e.g. via pin 19 of the SCART1 connection).
5. Ground the scope at the CRT panel ('cold' side) and connect a 10:1 probe to one of the cathodes of the picture tube socket (see diagram F).
6. Measure the 'cut off' pulse during the first full line after the frame blanking (see figure above). You will see two pulses, one being the 'cut off' pulse and the other being the 'white drive' pulse (measure the pulse with the lowest value, this is the cut-off pulse).
7. Measure all three cathodes, and select the one with the highest V_{DC} value for the alignment. Adjust the $V_{CUT\ OFF}$ of this gun with the SCREEN potentiometer on the LOT (see figure 8-5) to the correct value:
   – for 28” CRTs: 160 ± 3 V_{DC}.
   – for 32” CRTs: 170 ± 5 V_{DC}.
   – for 36” CRTs: 170 ± 3 V_{DC}.
8. Restore CONTRAST and BRIGHTNESS to the normal settings (see point 1).

Focus Alignment
Tune the set to a ‘circle’ or ‘crosshatch’ test pattern (use an external video pattern generator), and set BRIGHTNESS, COLOUR and SHARPNESS to nominal, and CONTRAST to maximum.
Now there are three set executions:

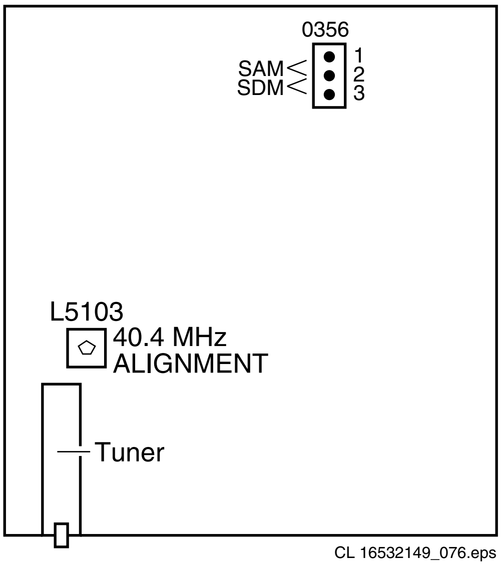
1. **For picture tubes with potmeters on the DAF module**. Align the focus, by means of the 2 focus potentiometers on the DAF-module (above the LOT, see figure 8.2) until the horizontal and vertical lines at 1/4 from east and west, at the height of the centre line, are of minimum width without introducing a visible haze. First, align the FOCUS1 (green) and then the FOCUS2 (black) potentiometer.
2. **For picture tubes with potmeters in the LOT**. Adjustment is identical.
3. **For 32' Real Flat picture tubes**. First, align the ‘static’ focus potmeter (black) until the vertical lines, at the height of the centre line, are of minimum width without introducing a visible haze. Then, align the ‘dynamic’ focus potmeter (green) until the vertical lines, at the height of the centre line, are of minimum width without introducing a visible haze.

Repeat steps if necessary.

8.3.4 Alignments on the Small Signal Panel (SSP)

40.4 MHz Neighbour-channel Sound Trap

SSP (component side)

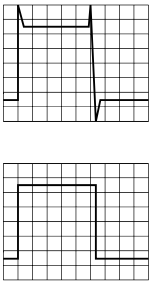


CL 16532149_076.eps
061201

Figure 8-4

1. Tune to a checker board test-pattern (system BG - and with a carrier frequency of 475.25 MHz).
2. Connect an oscilloscope (trigger line frequent) to pin 19 (CVBS out) of the SCART1 connection.
3. Align coil L5103 (on SSP, diagram K1) completely downwards (see figure above).
4. Align the coil upwards till under- and overshoot arise at the black/white and white/black transitions in the video signal (see figure below).
5. Align the coil downwards again until above mentioned under- and overshoot is just disappeared.

Waveform 40.4 MHz Alignment



CL 86532057_006.AI
170798

Figure 8-5

8.3.5 Alignments on the Full Dual Screen (FDS) Panel

These alignments are of interest when ICs, e.g. HIP (IC7501-TDA9320H) or EAROM (IC7991-M24C04), are exchanged on the FDS-module, or if the FDS Tuner (UV1316) has been exchanged.

40.4 MHz Neighbour-Channel Sound Trap

1. Tune the FDS-module to a checker board test-pattern (system BG - and with a carrier frequency of 475.25 MHz). See to it that the main program of the set is tuned to another channel.
2. Connect an oscilloscope (trigger line frequent) to pin 19 (CVBS out) of the SCART2 connection. This output is WYSIWYR (what you see is what you record)
3. Align the coil L5103 (on FDS, just below the tuner) completely downwards.
4. Align the coil upwards till under- and overshoot arise at the black/white and white/black transitions in the video signal (see figure above).
5. Align the coil downwards again till above mentioned under- and overshoot is just disappeared.

IF AFC

See paragraph ‘Software Alignments - General - VDS/PIP - IF AFC‘ below.

Tuner AGC

See paragraph ‘Software Alignments - General - VDS/PIP - Tuner AGC‘ below.

8.3.6 Alignments on the Surround Transmitter Module (diagr. R)

This alignment can only be performed when having mentioned (in alignment instructions) equipment.
Limited repair can be exercised if defective circuit is in the area that no alignment is needed.
If defective part is in circuitry where alignments are necessary, two things can be done:

- Swap panel by a new one.
- If alignment equipment is available, module can be aligned according described alignment-instructions.

Frequency Deviation Level of Transmitter

1. Insert on test points R1 (= F103) and R2 (=F106) a sine wave signal of 400 Hz with a amplitude of 3 V_{RMS}.
2. Align potmeter 3157 such, that the frequency-deviation is 75 kHz (+/- 5 kHz). This corresponds with a amplitude of 80 mV_{RMS} (230 mV_{PP}) on testpoint R11 (=F112).

8.3.7 Alignments on the Surround Receiver Module (diagram U)

Surround Receiver Component Side

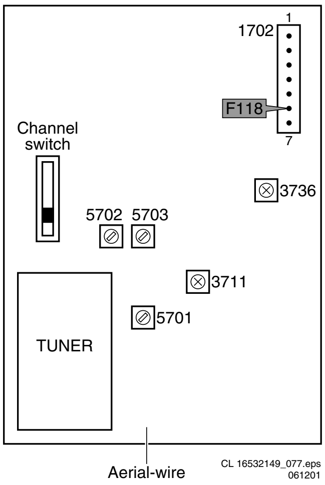


Figure 8-6

This alignment can only be performed when having mentioned (in alignment instructions) equipment.
Limited repair can be exercised if defective circuit is in the area that no alignment is needed.
If defective part is in circuitry where alignments are necessary, two things can be done:

- Swap panel by a new one.
- If alignment equipment is available, module can be aligned according described alignment-instructions.

Note: the aligned components are lacquered, so clean them first.

Alignment of FM-Detection Coil

Use a RF-generator as source: 1 mV, modulation 75 kHz.

1. Dependent of the receiver-version, place receiver on channel 4 (433, 926, or 864 MHz).
2. Align coil 5701 such, that a maximal audio frequency is detected at test point U6 (= F114).
3. Now swap the generator from frequency -150 kHz to +150 kHz, with the same amplitude and modulation.
4. Align 5107 such, that the ‘stop’ pulse (at F104, cathode of 6701) is symmetrical around 10.7 MHz (low value is < 0.3 V, high value is > 3.5 V.

Alignment of Tuned/Mute Level

Use a RF-generator as source: 3 to 7 μV, modulation 75 kHz.

1. Dependent of the receiver-version, place receiver on channel 4 (433, 926, or 864 MHz)
2. Align potmeter 3711 such, that mute-level is down at 3 μV and high at 7 μV at pin 6 of connector 1702 (=F118).

Alignment of VCO-Demodulator

Use a RF-generator as source: 1 mV, unmodulated.

1. Dependent of the receiver-version, place receiver on channel 4 (433, 926, or 864 MHz).
2. Align potmeter 3736 such, that you measure 100 kHz (+/- 300 Hz) at test point F131 (pin 11 of TDA1578A).

8.4 Software Alignments

Put the set in the SAM mode (see chapter 5). The Service Alignment Menu will now appear on the screen.
Via 'Alignments' the following submenu's can be selected:

1. **General:** all non-geometry related adjustments.
2. **Normal Geometry:** General geometry alignments.
3. **Super Wide Geometry:** Geometry alignments for the 'Panorama' position in 16:9 sets.
4. **Options:** Setting the initialisation codes in the TV via menu's.
5. **Option Numbers:** All options together, expressed in two long numbers. The original factory setting for these numbers can be found on the picture tube sticker on the inside of the set.
6. **Store:** Store all alignments.

Notes:

- **Important:** Once you have completed the alignments/ settings, select the item 'Store' (in main Alignment menu) to save all the values in the permanent memory of the set.
- If you changed and stored the Option codes, switch the set 'off' and 'on' with the mains switch. This, to activate the new settings. When switching via Stand-by, the option code settings are NOT read by the microprocessor.
- If an empty EAROM (permanent memory) is detected, all settings are set to pre-programmed default values.
- A built-in test pattern can be called up in some sub-menus. You can activate this pattern via the 'Test pattern on/off' item. The test pattern only appears AFTER the specific alignment is selected. The test patterns are generated by the Teletext-IC (OTC).

The alignments are explained now in the sequence of the sub-menu.

8.4.1 General

Drive

Method 1 (with colour analyser)

1. Go to the SAM 'Alignments - General - Drive' menu
2. Switch the ‘Test pattern’ to 'on' (you get a white block in middle of the image now).
3. Set 'Tint' to 'Normal'.
4. First, align the 'Cathode parameter'. This value is dependent of the picture tube size (see table 'Cathode parameter' for the colour-analyser readings).
5. Now, set the white levels for the three Tint-settings 'Normal', 'Warm' and 'Cool'. Align to the next values (see table 'White levels').

Table 8-4

CRT size/type	Light output (cd/m^2)
28" RF WS	390
32" RF WS	370
36" RF WS	330

Table 8-5

	Cool	Normal	Warm
X	280	289	314
Y	287	299	329
Temp. (K)	10200	8700	6500

Method 2 (without colour analyser)

1. Even without having a colour-analyser you can set some parameters. This is the next best solution. These parameters are average values coming from production (statistics).
2. Set 'Tint' to 'Normal'.
3. First, set the 'Cathode parameter' to the value '5'.
4. Now set the R-, G- and B-parameters for the three tint-settings 'Cool', 'Normal' and 'Warm'. See table 'Tint-settings' below for the values.
   Note: These values are only for the 32" CRT. At the moment of writing, the information for the 28 and 36" CRTs was not yet available. As soon as they are available, we will publish a 'Service Information'.
5. **Red BL offset**: herewith the Black Level can be aligned very precise. Default value is ‘7’.
6. **Green BL offset**: herewith the Black Level can be aligned very precise. Default value is ’7’.

Table 8-6

32" CRT	δ Cool	Normal	δ Warm
R	-1	40	+ 2
G	0	29	0
B	+ 4	34	- 10

Luminance Delays

With the 'Luminance delays' alignment the luminance information is placed on the chrominance information (brightness is pushed onto the colour). Use a colour bar/grey scale pattern as test signal.

- **Lum. Delay PAL**: Apply a PAL colour bar/grey scale pattern as a test signal. Adjust 'Lum. Delay PAL' until the transients of the colour part and black and white part of the test pattern are at the same position.
- **Lum. Delay SECAM**: Apply a SECAM colour bar/grey scale pattern as a test signal. Adjust 'Lum. Delay SECAM' until the transients of the colour part and black and white part of the test pattern are at the same position.
- **Lum. Delay Bypass**: apply a NTSC colour bar/grey scale pattern as a test signal. Adjust value until the transients of the colour and black & white part of the test area are at the same position.

EHT Compensation

Fixed setting: 0

Soft Clipper

Fixed setting: Pwl + 0%

Luma Gain

Fixed setting: 1

IF AFC

The SAM-mode is needed to make alignment, a test generator to make signal and the Installation-menu to check the 'Fine Tune' value.

Supply, via a video generator (e.g. PM5518), a TV-signal with a signal-strength of at least 1 mV and a frequency of 475.25 MHz. Use BG if possible, otherwise match the system of your generator with the received signal in the set.

Alignment procedure:

1. Go to the 'Installation' menu.
2. Select 'Manual installation'.
3. Tune the TV-set to the system and frequency described above via 'Search - 475 - OK'.
4. If the frequency showed in the line 'Fine tune' is between 475.18 MHz and 475.31 MHz, you don't need to re-adjust the IF-AFC.
5. If not, adjust the frequency in the 'Fine tune' line to 475.25 MHz and 'Store' the program (this is very important because this will disable the AFC algorithm).
6. Now go to the SAM and select 'Alignments - General - IF AFC'.
7. During the 'IF AFC'-parameter adjustment, one can see OSD feedback in the top of the screen. The OSD feedback can give 4 kind of messages:

Table 8-7

AFC-window	AFC-frequency vs. reference
Out	High
In	High
In	Low
Out	Low

The first item (‘In’ or ‘Out’) informs you whether you are in or out the AFC-window.

The second item (‘High’ or ‘Low’) informs you about whether the AFC-frequency is too high or too low.

1. First you must align the 'IF AFC'-parameter such that you come into the AFC-window (= 'In')
2. Then you must look for the point where the 'IF AFC'-parameter changes from High to Low. This level is the value you are looking for.
3. After adjustment 'Store' the value.
4. Now return to the 'Installation' menu.
5. Select 'Manual Installation - Search - 475 - OK' and 'Store'. This will set the AFC 'on' again.

Service-Tip: If you do not trust the accuracy of the frequency of your Service-generator, first 'measure' with 'Fine tune'-line (manual install-menu) of a good set your video generator.

Tuner AGC

1. Supply a TV-signal, with a frequency of 475.25 MHz and a signal-strength of about 2 mV.
2. Measure the DC-voltage on pin 1 of the Tuner (position 1200). With the 'Tuner AGC'-alignment in the SAM-menu, this voltage can be aligned.

3. Alignment is correct when the DC-voltage is just below 3.8 V.

Blend Intensity

Use this alignment when the micro controller or HOP-IC has been replaced.
It aligns the level of transparency of the menu-picture blended into the main-picture.

1. Position the BRIGHTNESS-, CONTRAST- and COLOUR setting in the middle position (picture-menu).
2. Apply a signal with a 100 % white video-pattern.
3. Connect an oscilloscope to pin 7 of connector 0340 of the CRT panel and measure the Red output level.
4. Align 'blending intensity'-parameter such, that the blended signal is 65 % of the black-white amplitude. Practically this will be about 1.3 V (blended signal) versus 2 V (full white signal). The parameter is adjustable between 0 and 31.

Adjust Peak White Limiter

Enter for all picture tubes the value '4'.

Vg2 Test Pattern

Here, you can activate the Vg2 Test pattern. See paragraph ‘Hardware Alignments’ for a description.

VDS/PIP (optional)

With this adjustment, you can set the following parameters (which are stored in the local memory IC7991):

- **IF AFC.** This alignment is identical to the one described above.
- **Tuner AGC**. See description below:
  1. Supply a video signal, with a frequency of 475.25 MHz and a signal-strength of about 2 mV to the set.
  2. Measure the DC-voltage on pin 1 of the tuner 1102 (easiest way is to measure on SMD capacitor C2116, just underneath the tuner).
  3. Align the voltage via the menu. The alignment is correct when the DC-voltage is just below 3.8 V

8.4.2 Normal Geometry

Note: Use for all geometry alignments an **external** pattern generator with a geometry pattern (e.g. crosshatch).

Geometry Alignments

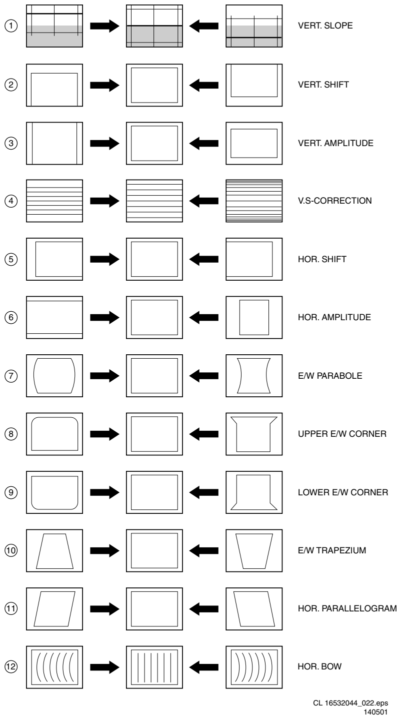


Figure 8-7

Vertical Slope

This alignment is meant to align the zero crossing of the frame-deflection to the mechanical middle of the picture tube.

1. First set the start conditions for 16:9 sets: '**V. S-correction**' value on '0' for the 28" sets, and '9' for the 32" and 36" sets. Position the boundary-stripes of the test pattern on the edges of the picture tube.
2. Align '**V. slope**' (during alignment the below-half of the picture is blanked). Match the middle line of the test pattern with the upper edge of this blanking picture. Push the MENU button again, to return to the previous menu.

Service tip: When the set is equipped with a rotation coil, use this menu item to check its correct alignment. If alignment is not correct, go to the INSTALLATION menu, choose SETUP, press OK, and choose PICTURE TILT. With the use of a crosshatch test pattern, align it to a correct horizontal picture.

Vertical Amplitude and Centring

1. Use '**V. amplitude**' to align the vertical amplitude so that the entire test pattern is visible.
2. Use '**V. shift**' to align the picture vertically in the middle.
3. Repeat the '**V. amplitude**' alignment if necessary.

Vertical S-correction

Align '**V. S-correction**' such that a block at the top of the picture has the same height as a block in the middle of the picture.

Horizontal amplitude and centring

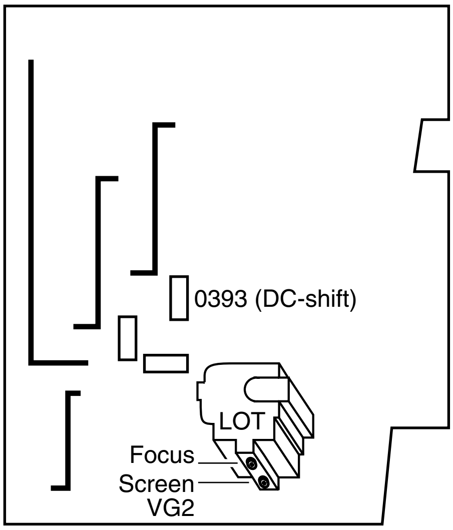
1. Use '**H. amplitude**' to align the horizontal amplitude so that the entire test pattern is visible.
2. Use '**H. shift**' to align the picture horizontally in the middle.
3. Repeat the '**H amplitude**' alignment if necessary.

Note: If you cannot compensate the drift in the horizontal shift, go to the next subject 'DC-shift'.

DC-shift

In case the horizontal linearity in wide-screen mode is out of tolerance, add a 'DC-shift correction' panel (3104 328 00641) to connector 0393 on the LSP (see figure below).
Caution: Be sure to switch 'off' the set first. On this DC-shift panel, cut position 9031 for correction to the right or cut position 9030 for correction to the left.
Caution: never plug in a not pre-aligned module in a set !!!

DC-shift Connector



CL 16532149_078.eps
201201

Figure 8-8

In 32" and 36" sets, an **adjustable** DC-shift feature is always present. This is located on the DAF panel (potentiometer 3050). How to align:

1. Increase BRIGHTNESS to '45' (3/4 of scale).
2. Set DC-shift potmeter (item 3050 on DAF module) at midway. Maybe it is necessary to unhook the DAF module first, in order to access this potmeter (see chapter 4).
3. Apply a circle as test pattern.
4. Enter the SAM, choose ALIGNMENTS, and NORMAL GEOMETRY.
5. Write down the H. AMPLITUDE value.
6. Reduce H. AMPLITUDE until overscan and grey zones at the left and right are well visible.
7. Adjust H. SHIFT until picture is positioned symmetrically in the grey zone.
8. Recall the H. AMPLITUDE value.
9. Turn potmeter 3050 on the DAF module, until the picture edges are just visible.
10. Store the new value for H. SHIFT into the NVM (via the main Alignment menu).

East/west alignment

1. Use '**East/West Parabola**' to align the vertical lines until straight.
2. Use '**Upper East/West corner**' to align the vertical lines in the upper corners until straight.
3. Use '**Lower East/West corner**' to align the vertical lines in the lower corners until straight.
4. Use '**East/West Trapezium**' to align for a rectangular.
5. Use '**Horizontal Parallelogram**' to align for straight vertical lines if necessary.
6. Use '**Horizontal Bow**' to correct the E/W parabola such that it becomes symmetrical.

Repeat steps 1 to 6 if necessary.

8.4.3 Super wide geometry

You only need to set the following values (if the normal geometry alignment has been performed correctly):

- **V. shift:** enter here the value of the 'normal geometry' alignment.
- **V. amplitude:** adjust image such that the outer vertical lines are just visible.
- **V. S-Correction:** enter here the value of the 'normal geometry' alignment.
- **H. amplitude:** enter here the value of the 'normal geometry' alignment subtracted by 2.
- **E/W Parabola:** enter here the value of the 'normal geometry' alignment.

8.4.4 100Hz Geometry

As all alignments are done in Pixel Plus mode @ 75 Hz, the 100 Hz mode needs an extra alignment:

- Select '**100Hz Geometry**'. The set automatically switches to 100 Hz mode.
- **V. slope:** Match the middle line of the test pattern with the upper edge of this blanking picture. Push the MENU button again, to return to the previous menu.
- After the alignment, return to the previous menu. The set automatically returns to 'Pixel Plus' mode.

9. Circuit Descriptions, Abbreviation List and Data Sheets

Index of this chapter:

1. Introduction
2. Power Supply
3. Video Path
4. Feature Box 7
5. Auto Scavem
6. Wireless Surround Amplifier
7. Abbreviation List
8. IC Data Sheets

Note:

- Only **new** circuits (compared to the MG3.1E) are described. For the other circuit descriptions, see the training manual of the MG3.1E. This manual is available in different languages:
  - 3122 785 10007 = English GB
  - 3122 785 10008 = Dutch NL
  - 3122 785 10009 = German D
  - 3122 785 10011 = French F
  - 3122 785 10012 = Italian I
  - 3122 785 10013 = Spanish E
- Figures can deviate slightly from the actual situation, due to different set executions.
- For a good understanding of the following circuit descriptions, please use the diagrams in chapter 6 and 7. Where necessary, you will find a separate drawing for clarification.

9.1 Introduction

In the MG3.2E, a high-resolution mode is introduced, in order to obtain a sharper picture. This feature is called ‘Pixel Plus’. It includes the following changes:

- A new 'Feature Box version 7' (FBX7), which contains the ‘Eagle’ IC. This IC is responsible for the definition improvement.
- With ‘Pixel Plus’, the pixels in horizontal direction are doubled.
- The number of vertical lines per picture is increased to 833, which improves the vertical definition.
- The frame deflection works on 75 Hz (which is the best compromise without introducing flicker).
- The signal bandwidth from FBX7 to picture tube is increased, in order to be able to cope with these high definition signals.
- A new Scavem circuit is necessary for the higher definition. This Scavem is dependent of the used picture tube and the picture content, and is controlled by the AutoTV algorithm. That is why it is called ‘Auto Scavem’.

In addition, the Top Power Supply is adapted, so it can deliver more power.

In the 'Digital Options' menu, you now have three options:

- Digital Scan (100 Hz)
- Pixel Plus (75 Hz)
- Double Lines (50 Hz).

In all modes, the line frequency is 31250 Hz. Pixel Plus is the preferred mode. That is why the optimal geometry of this chassis is set for 75 Hz.

Standard OSD is developed for 625 lines. Therefore, in 833 lines mode, this will give smaller fonts and a different screen position. To solve this, larger fonts are used.

In 'TXT' and 'TXT Double Window' mode, the set is switched to 'Natural Motion'. For subtitles 'Pixel Plus' is used, this will result however in somewhat smaller fonts. In 'Full Double Window' mode, the set is in 'Pixel Plus' mode.

9.2 Power Supply (Diagram B)

There are two important changes on the Top Supply Panel (TSP):

The mains harmonic coil (item 5280) is now mounted directly on the supply board, i.s.o. using an external 'Mains Harmonic' unit.

The 8V6 and 5V2 supplies have to deliver more power. This is accomplished in the following way. The existing DC/DC converter MC34167 was not able to deliver a higher output current and had a rather high working temperature. Therefore, it is replaced by another type, the L4977A (item IC7211). This IC uses the same working principle, but has a higher maximum output current, and works at a lower temperature. However, it needs a higher supply voltage of 24 V_{DC} (i.s.o. 16 V_{DC}). This higher supply voltage is achieved by changing transformer T5202. The output voltage of the converter is determined by the value of R3230 and 3231. A disadvantage of the new DC/DC converter is that it needs more external components, and therefore needs more space. This extra space is found by changing the Standby Supply circuitry. This change involves the replacement of items TS7100 to 7103 by a single TNY256 IC (pos. 7103). This IC generates drive-pulses for transformer T5101. The maximum frequency is 132 kHz at full load, and decreases with smaller loads. The working principle of this IC is called 'cycle skipping'. It implies that the IC supplies a pulse train, to which cycles are removed or added, hereby changing the output frequency. One disadvantage of using this IC is the increased chance of introducing picture spook. Therefore, capacitors 2101 and 2106 are added, to minimise this effect. Regulation of the 5 V Standby voltage happens as before (via opto-coupler 7104). If this feedback circuit is interrupted, the IC starts to work in an open loop configuration, and the output voltage will rise rapidly to 12 V. To prevent this, an Over Voltage Protection (OVP) circuit is added (thyristor 7106 and zener 6108). If the 5 V Standby voltage exceeds the zener voltage (6.8 V), the thyristor is triggered, and will limit the output voltage.

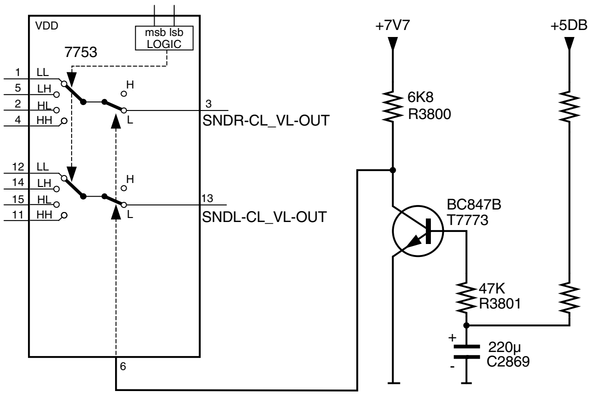
9.3 Video Path

9.3.1 Power Supply Tuner (Diagram K1)

The power supply of the Tuner is now controlled with a voltage stabiliser (item IC7113). This is done, to assure a more accurate power supply to the tuner.

9.3.2 Anti-Plop Circuit (Diagram K3)

Anti-plop



CL 16532149_079.eps
131201

Figure 9-1

As capacitor C2869 is not charged at power start-up, transistor TS7773 will block and pin 6 of audio switch IC7753 is 'high'. This means that the sound is muted. After charge-up, TS7773 will conduct and the audio signals are passed.

9.3.3 RGB Path (Diagram F)

RGB signal path

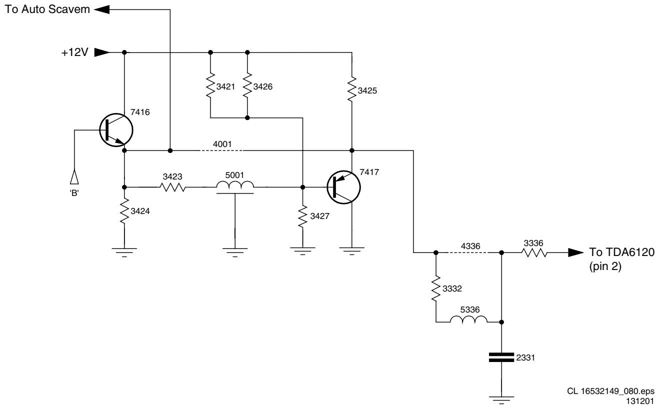

To Auto Scavem
+12V
3421
3426
3425
7416
4001
'B'
3423
5001
7417
3424
3427
4336
3336
To TDA6120 (pin 2)
3332
5336
2331
CL 16532149_080.eps
131201

Figure 9-2

The RGB signals from the HOP are fed to three identical amplifiers (TDA6120). We take one of them (B, item 7330) as example for the description. After emitter follower TS7416, the signal is tapped for the Auto Scavem circuitry, and is fed to TS7417. This emitter follower sends the signal, with the same DC-voltage, to the amplifier. In order to cope with the higher definition, this IC has a larger bandwidth (20 MHz) as the one used in the MG3.1E.

9.4 Feature Box 7 (Diagram L)

The objective for this chassis is was, to reach a sharper picture by means of a higher definition.
This is achieved via the so-called 'Pixel Plus' feature. So, what is Pixel Plus?

9.4.1 Introduction

In the Feature Box 7 (FBX7), a new IC is used, called the 'Eagle'. This IC does the following picture improvements:

- Horizontal: increases from 840 to 1680 pixels per line (the number of pixels is doubled per line). This, by itself, does not mean an improvement in definition however. To achieve that, the new pixels are digitally processed inside the Eagle with Luminance Transient Improvement (LTI) and Peaking. This will give the new pixels extra picture information, which results in steeper slopes and contrast improvement at details.
- Vertical: increases from 625 lines (PAL) to 833 lines. Also, those new lines are processed inside the Eagle with LTI and Peaking, again resulting in lines with extra picture information.
- The line frequency is fixed on 31250 Hz and the frame frequency at 75 Hz (this will give no frame-flicker). Also, other modes, like 'Digital Scan' are still possible.
- The colour enhancement features of the TOPIC are done by the Eagle.

9.4.2 Block diagram

FBX7

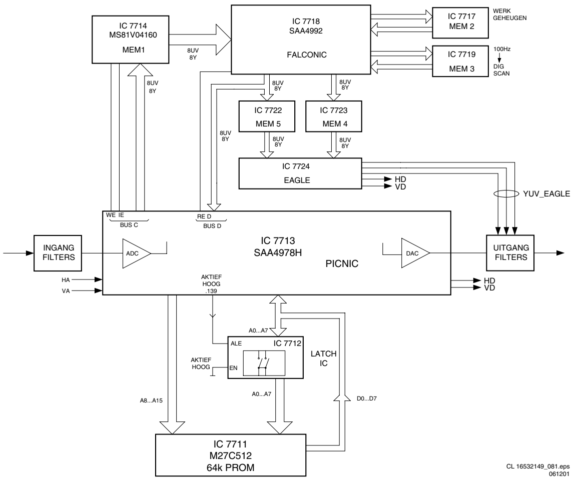

IC 7714
MS81V04160
MEM1
8UV
8Y
IC 7718
SAA4992
FALCONIC
IC 7717
MEM 2
WERK GEHEUGEN
IC 7719
MEM 3
100Hz
DIG SCAN
IC 7722
MEM 5
IC 7723
MEM 4
IC 7724
EAGLE
HD
VD
YUV_EAGLE
WE IE
BUS C
RE D
BUS D
INGANG FILTERS
ADC
IC 7713
SAA4978H
PICNIC
DAC
UITGANG FILTERS
HA
VA
AKTIEF HOOG .139
A0...A7
ALE
IC 7712
LATCH IC
AKTIEF HOOG
EN
A8...A15
D0...D7
IC 7711
M27C512
64k PROM
CL 16532149_081.eps
061201

Figure 9-3

The 50 Hz YUV signals, coming from the HIP, are fed to the PICNIC via an anti-aliasing filter.
The (AABB) frame frequency doubling is done by the PICNIC (SAA4978, 160 pins QFP) together with a field memory (MEM1). This IC can handle most 100 Hz functions (except Progressive Scan).
This PICNIC has an internal CPU and a (small) integrated ROM. The actual FBX7 software is located in an external ROM (item 7711). In order to limit the number of connections between the PICNIC and the external ROM, a number of lines are used twice. The lines A8 to A15 are fixed lines, while the lines A0 to A7 are made switchable with the eight data lines of the ROM. This is done via a Latch (item 7712), which is controlled by pin 139 of the PICNIC (the ALE signal).
Via bus 'C', a digitalised signal is presented to MEM1, which is used for the 50 to 100 Hz conversion. The signal goes further via the data-bus to the FALCONIC. This IC has the following functions:

- Line flicker reduction.
- Digital Noise Reduction (DNR).
- Progressive scan (262.5 - 525 or 312.5 - 625 lines per frame).

At the end, the digital YUV signals enter, via MEM4 and MEM5, the Eagle IC.
This IC has the following functions:

- Luminance Transient Improvement (LTI).
- Peaking.
- Programmable number of lines.
- Programmable number of pixels per line.
- Demo mode (split screen).
- Improved colour transients (CTI) and colour enhancement (TOPIC).
- Improved vertical zoom.

The digital YUV-signals from the Eagle go, via a passive output filter, to the HOP.

As only the Eagle IC is new, it is described below in more detail. For a detailed description of the other ICs, please check the training manual of the MG3.1E.

9.4.3 Eagle (Diagram L2)

Introduction

Some strong picture improvements are carried out inside the Eagle, which all contribute to the excellent picture quality. These improvements are:

- LTI (both horizontal and vertical).
- CTI (only horizontal).

- Peaking (both horizontal and vertical).
- More pixels per line.
- More lines per frame.
- Better colour transitions.

By means of over sampling, the video signals get a sample frequency of 64 MHz, a bandwidth of 20 MHz, and 1680 pixels per line (was 32 MHz, 10 MHz and 840 pixels/line). This requires two extra field memories (MEM4 and MEM5).

The Eagle can handle four different modes:

- **Digital Natural Motion (PAL)**:
  100 Hz, 2fH, 2:1 Interlace (1680 pixels x 625 lines)
- **Pixel Plus (PAL)**:
  75 Hz, 2fH, 2:1 Interlace (1680 pixels x 833 lines)
- **Double Lines (PAL)**:
  50 Hz, 2fH, 2:1 Interlace (1680 pixels x 1250 lines)
- **Pixel Plus (NTSC)**:
  60 Hz, 2fH, 2:1 Interlace (1680 pixels x 1050 lines)

LTI (Luminance Transient Improvement)

The main objective of LTI is a steeper slope at contrast transitions (e.g. from 10 mV to 900 mV within 3 pixels i.s.o. 5 pixels for one detail). It is based on waveform altering around a signal jump.

Important: The LTI, as used in the Eagle, is designed for interpolated picture contents. This means that for pixel/line doubling, one of the two pixels/lines is an interpolated value. When a picture jump is interpolated, you will get extra room to make it steeper (you get extra pixels to describe the slope). Without interpolation, you cannot use this kind of LTI.

- LTI can add 'ears' to the waveform at the jump (a kind of controlled overshoot).
- LTI 'estimates' the frequency of the jump and will adapt the amplification to this frequency.
- LTI is applied both horizontal as vertical.
- LTI is amplitude dependent. This means that only 'big' jumps are processed. It works with a threshold, which is coupled to the noise meter via the Auto TV software.
- LTI is also frequency dependent. This means that it is distributed over the slopes. When there are many steep slopes in the signal, LTI will only process the steepest ones. If there are only a few slopes, LTI will process all of them. This is fully hardware implemented.

Horizontal LTI

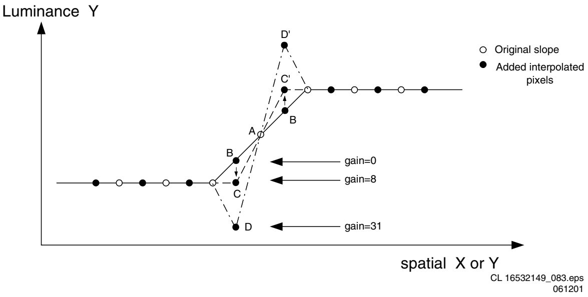


Figure 9-4

For horizontal LTI, the number of pixels is doubled (64 MHz) by means of interpolation. Pixel A at the transition will keep its luminance value, while the (new) pixels B can have a luminance value of zero to max. 31. For example:

- Pixels B can keep the same value (gain = 0)
- Pixels B can get the value of C and C' (gain = 8), which will give a steeper slope.
- Pixels B can also get the value of D and D' (gain = 31), which will give an even steeper slope with the so-called 'ears'. These 'ears' will give a **contrast** improvement.

For CTI, the same principle is used, in order to get better **colour** transitions.

Vertical LTI

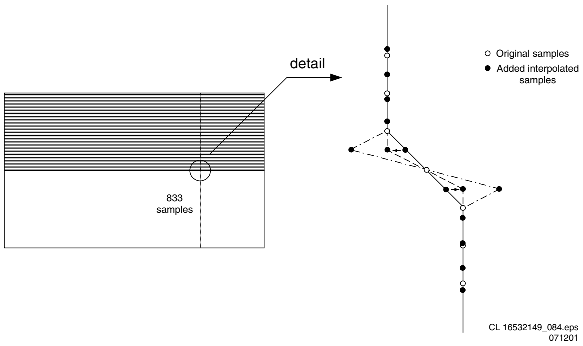


Figure 9-5

The principle for vertical LTI is the same as for horizontal LTI. The shift from 625 to 833 lines is done by means of a scaler. With these extra interpolated samples, it is possible to create steeper slopes, possibly with 'ears'.

Peaking/Coring

The objective of 'peaking' is contrast improvement (e.g. from 50 to 70 mV_{PP} for one detail).
It uses a noise threshold (coring = non-linear filtering around zero-level), thus it works everywhere in the picture (except below the threshold level).
The added difference signal is frequency dependent, which results in frequency dependent contrast improvement. When the difference signal becomes too large, the peaking is reduced (smartness).

Peaking

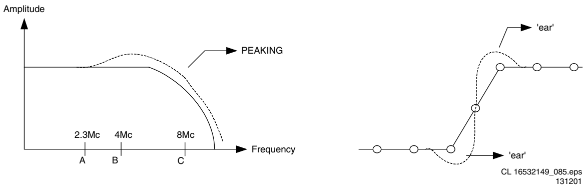


Figure 9-6

To obtain above shown filter characteristic, filters are set at three parameters (A, B, and C). In this way, only the higher frequencies are 'lifted'. After sending the luminance signal through these filters, the filter output is added to the original signal. In this way, the so-called 'ears' are created, together with the steeper slopes. These 'ears' will give a **contrast** improvement at details.

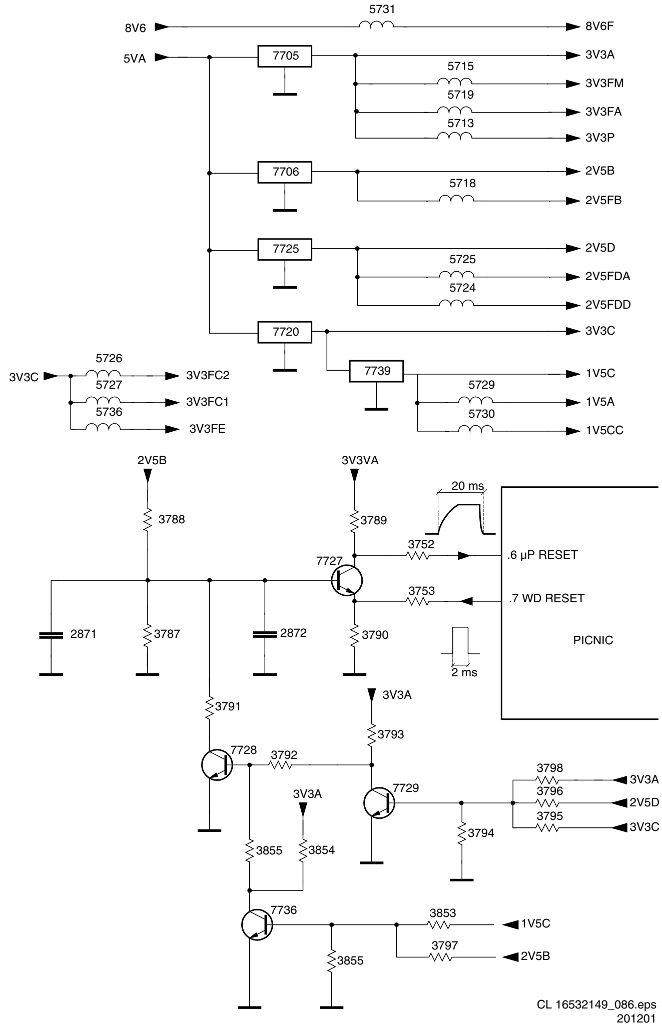
Both horizontal and vertical peaking is **amplitude dependent**: the higher the signal jump, the lower the peaking. This is done to avoid that high jumps get big 'ears', because this will introduce nasty contouring. To avoid peaking on noise levels, coring is used. The coring threshold is set via the Auto TV software, by means of the noise meter.
Therefore, the result is that **only details** are processed by the peaking.

The horizontal peaking is also **frequency dependent**: it is possible to perform peaking around three frequencies (when combined, it is even possible to peak at variable frequencies). In Auto TV, this feature is software coupled to the sharpness meter, in order to get the most optimal filter characteristic.
The vertical peaking works on a fixed frequency.

Colour Enhancements

In the FBX6 (as used in the MG3.1E), the TOPIC handled the colour enhancement features, such as: 'skin tone correction', 'blue stretch', and 'green enhancement'. In the new FBX7, all this is done by the Eagle IC.

Power Supply and POR


8V6
5731
8V6F
5VA
7705
3V3A
5715
3V3FM
5719
3V3FA
5713
3V3P
7706
2V5B
5718
2V5FB
7725
2V5D
5725
2V5FDA
5724
2V5FDD
7720
3V3C
7739
1V5C
5729
1V5A
5730
1V5CC
3V3C
5726
3V3FC2
5727
3V3FC1
5736
3V3FE
2V5B
3V3VA
20 ms
3788
3789
3752
.6 µP RESET
7727
3753
.7 WD RESET
2871
3787
2872
3790
PICNIC
2 ms
3V3A
3791
3793
7728
3792
3798
3V3A
3V3A
7729
3796
2V5D
3795
3V3C
3794
3855
3854
7736
3853
1V5C
3797
2V5B
3855

CL 16532149_086.eps
201201

Figure 9-7

Besides the two incoming voltages 8V6 and 5V2, also five voltage stabilisers are used to derive the necessary voltages. This is done for power consumption reasons.

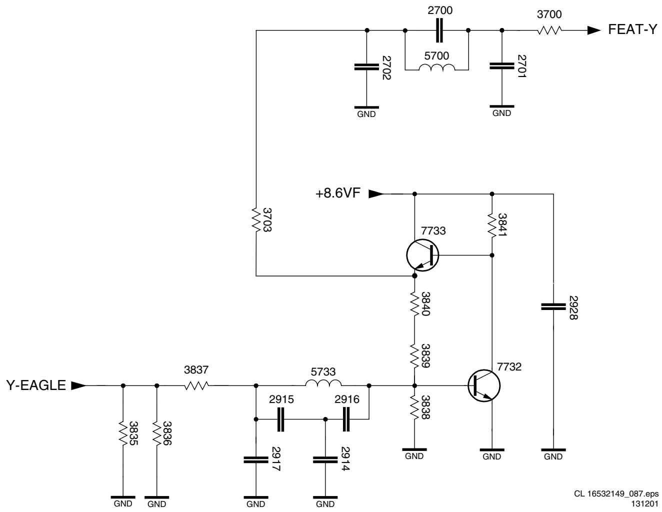
Via a reset circuit (TS7727) a reset pulse (POR) of 20 ms is generated for the µP inside the PICNIC and for the ROM. After 'power on', the 3V3 is built up (derived from the 5V2). Transistor TS7727 blocks and pin 6 of the PICNIC will follow the rising slope of the power supply. As soon as the power supply is stabilised, capacitor C2872 will charge (via R3788). When this voltage reaches 0.6 V (after 20 ms), TS7727 starts to conduct, and the voltage at pin 6 goes low again. The µP is reset now. If the PICNIC cannot communicate with the ROM, the 'watchdog' will generate a reset pulse (on pin 7), which will re-start the cycle again.

If one of the power supplies is absent (or too low), then a safety problem can occur in some cases (e.g. a too high temperature of the stabiliser). To prevent this from happening, the voltage dividers at the bases of the transistors TS7729 and TS7736, are calculated such that they will block when above described situations occurs. In this case, the base of TS7727 is kept 'low' by the conducting TS7728, until the problem is solved. The µP receives no POR pulse, and cannot be reset.

Output

The YUV signals presented to the HOP come from the Eagle. These three signals have all the same circuitry so it is explained once (for Y).

YUV Output Filter


2700
3700
FEAT-Y
2702
5700
2701
GND
GND
+8.6VF
3703
7733
3841
3840
2928
3839
7732
3837
5733
Y-EAGLE
2915
2916
3838
3835
3836
2917
2914
GND
GND
GND
GND
GND
GND
GND

CL 16532149_087.eps
131201

Figure 9-8

The YUV signals are first filtered by a 64 MHz passive filter (L5733 and C2914-2917). Because the output signals from the Eagle are too small to drive the HOP directly, they are amplified by the circuit around TS7732 and TS7733. The gain is determined by R3839, R3840, and R3837. For the Y-signal the gain is 2, for the U-signal it is 1.33, and for the V-signal it is 1.05.

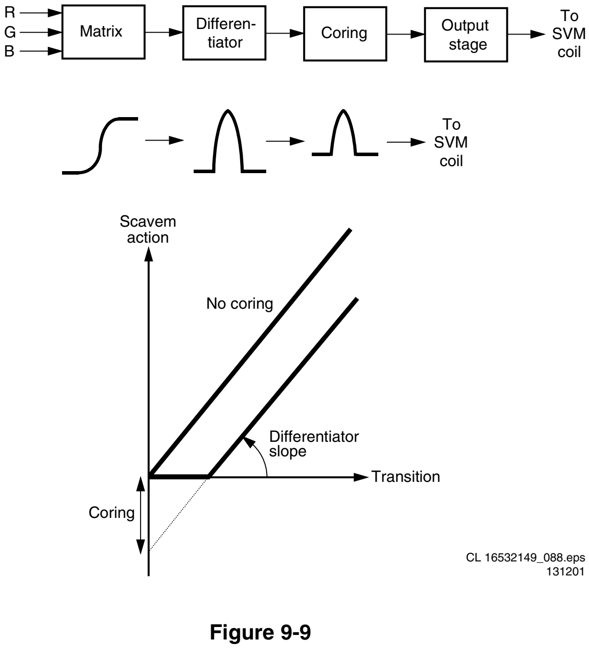
9.5 Auto Scavem

9.5.1 Introduction

To improve the sharpness, the Scan Velocity Modulation (Scavem) circuit modulates the deflection speed as a function of the picture contents. This feature uses a separate Scavem deflection coil.
Auto Scavem is introduced, to be able to display the high definition signal from the FBX7. As the Scavem circuit is now controlled by the Auto TV software, it is called Auto Scavem. The circuit, with the Scavem amplifier, is located on a separate PWB (in front of the SSP), and is connected to the picture tube panel.

9.5.2 Normal Scavem

Block diagram


R
G
B
Matrix
Differen-
tiator
Coring
Output
stage
To
SVM
coil
To
SVM
coil
Scavem
action
No coring
Differentiator
slope
Transition
Coring

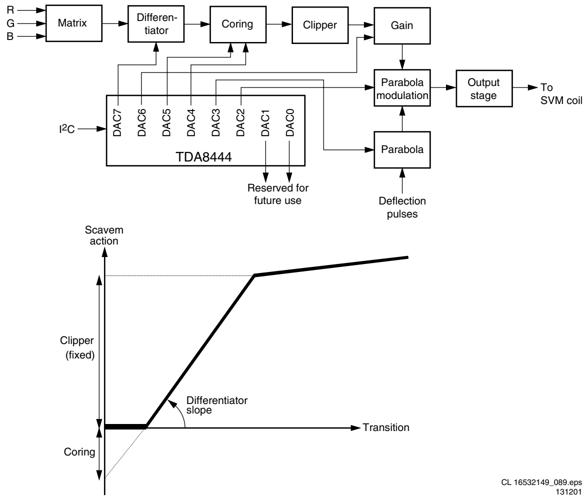
CL 16532149_088.eps
131201

Figure 9-9

With normal Scavem (as used in the MG3.1E), the RGB signals are added together and differentiated before they drive the Scavem coil. The coring block prevents that Scavem processing is done on low signal levels.

9.5.3 Auto Scavem (Diagram SC)

Block diagram


R
G
B
Matrix
Differen-tiator
Coring
Clipper
Gain
Parabola modulation
Output stage
To SVM coil
I2C
DAC7
DAC6
DAC5
DAC4
DAC3
DAC2
DAC1
DAC0
TDA8444
Reserved for future use
Parabola
Deflection pulses
Scavem action
Clipper (fixed)
Differentiator slope
Transition
Coring

CL 16532149_089.eps 131201

Figure 9-10

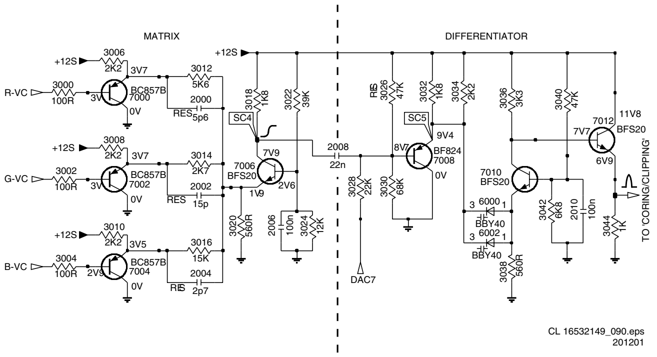
This new Auto Scavem circuit include some extra blocks:

- Clipper
- Parabola modulation

Auto Scavem is fully software controlled, by means of I²C. The speed, at which Auto Scavem is adapted, is controlled by the Auto TV algorithm. This adaptation takes place together with the FBX initialisation, and takes about 1 second. The different circuit stages are controlled via a DAC (item 7500, TDA8444). The new Auto Scavem circuitry also produces higher Scavem currents, which results in sharper pictures. For the circuit description, we splitted the circuit in eight stages.

Matrix and Differentiator

Stage 1 and 2


MATRIX
DIFFERENTIATOR
+12S
R-VC
G-VC
B-VC
3000 100R
3002 100R
3004 100R
3006 2K2
3008 2K2
3010 2K2
BC857B 7000
BC857B 7002
BC857B 7004
3012 5K6
3014 2K7
3016 15K
2000 5p6
2002 15p
2004 2p7
RES
SC4
7006 BFS20
3018 1K8
3022 39K
3020 560R
2006 100n
3024 12K
2008 22n
DAC7
SC5
3026 47K
3028 22K
3030 68K
3032 1K8
3034 2K2
BF824 7008
7010 BFS20
6000 BBY40
6002 BBY40
3036 3K3
3038 560R
3040 47K
3042 6K8
2010 100n
3044 1K
7012 BFS20
11V8
6V9
TO 'CORING/CLIPPING'

CL 16532149_090.eps 201201

Figure 9-11

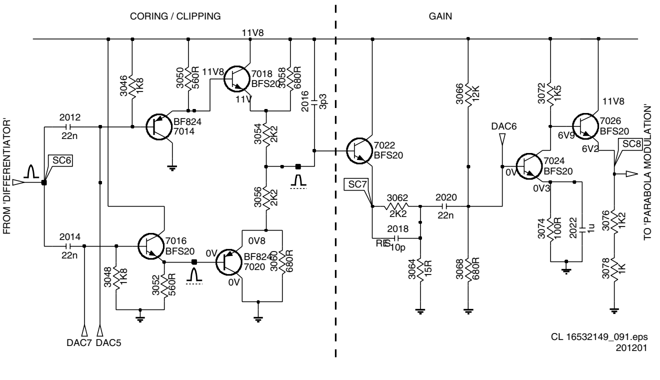
The RGB signals are added via transistors 7000, 7002 and 7004, on the emitter of transistor 7006. This is done via resistors 3012, 3014, and 3016, which have a different 'weight' factor. This, to regain the luminance signal.

The next circuit is the differentiator. The combined signal enters this circuit at the base of transistor 7008. The DC-level of this transistor is controlled by the DAC7 line, which is dependent of the 'sharpness meter' reading in the Auto TV algorithm. By means of this control signal, the voltage and capacity of varicap diode 6000 is altered, which will adapt the differentiator.

The slope of the differentiator is controlled by this DC-level. The differentiation itself is done by varicap diode 6000. Output signal goes from the collector of transistor 7010 via emitter follower (= buffer) 7012, to the next stage.

Coring/Clipping and Gain

Stage 3 and 4


CORING / CLIPPING
GAIN
FROM 'DIFFERENTIATOR'
11V8
2012 22n
2014 22n
SC6
3046 1K8
BF824 7014
7016 BFS20
3048 1K8
3050 560R
3052 560R
7018 BFS20
BF824 7020
3054 2K2
3056 2K2
3058 680R
3060 680R
2016 3p3
DAC7
DAC5
7022 BFS20
SC7
3062 2K2
2018 10p
3064 15R
2020 22n
3066 12K
3068 680R
DAC6
7024 BFS20
3072 1K5
3074 100R
2022 1u
7026 BFS20
3076 1K2
3078 1K
SC8
TO 'PARABOLA MODULATION'

CL 16532149_091.eps 201201

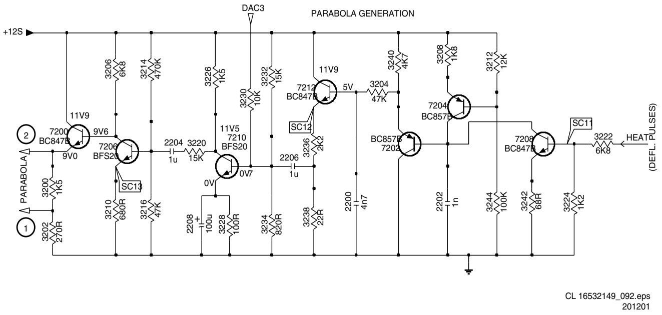
Figure 9-12

The coring circuit (items 7014 and 7016) prevent Auto Scavem on the lowest signal levels (= noise), while the clipper circuit (items 7018 and 7020) always give the same amount of Scavem above a certain level.
The levels at which this must happen, are controlled by the DAC4 and DAC5 lines, and are dependent of the 'noise meter' reading in the Auto TV program.

The input signal enters this circuit at emitter follower 7022, and is strongly attenuated via voltage divider R3062 and R3064. This, because the gain of transistor 7024 is set with the adjustable voltage divider of R3066, R3068 and R3070. The level at which this happen, is controlled by the DAC6 line, and is dependent of the 'sharpness meter' reading in the Auto TV program, the picture tube size, and the sharpness setting by the customer.

Parabola Generation

Stage 5


DAC3
PARABOLA GENERATION
+12S
PARABOLA
7200 BC847B
7206 BFS20
7210 BFS20
7212 BC847B
7204 BC857B
7202 BC857B
7208 BC847B
SC12
SC13
SC11
3200 1K5
3202 270R
3206 6K8
3210 680R
3214 470K
3216 47K
2204 1u
3220 15K
2208 100u
3226 1K5
3228 100R
3230 10K
3232 15K
3234 820R
3236 2K2
2206 1u
3238 22R
3204 47K
2200 4n7
3240 4K7
3208 1K8
2202 1n
3212 12K
3244 100K
3242 68R
3224 1K2
3222 6K8
HEATER (DEFL. PULSES)

CL 16532149_092.eps 201201

Figure 9-13

In addition, the Scavem signal is modulated with a parabola. This is necessary, because the picture tube is less sensitive for Scavem in the centre as on both sides.
On the CRT-panel, the 'heater' pulses are used to create a parabola on line frequency. This parabola is made with transistors 7204 and 7206. The DC-level of these transistors is controlled via the DAC3 line. In this way, you can control the parabola via software. The level is dependent of the 'sharpness meter' reading in the Auto TV program, the picture tube size, and the sharpness setting by the customer.

Parabola Modulation and Pre-amplifier

Stage 6 and 7

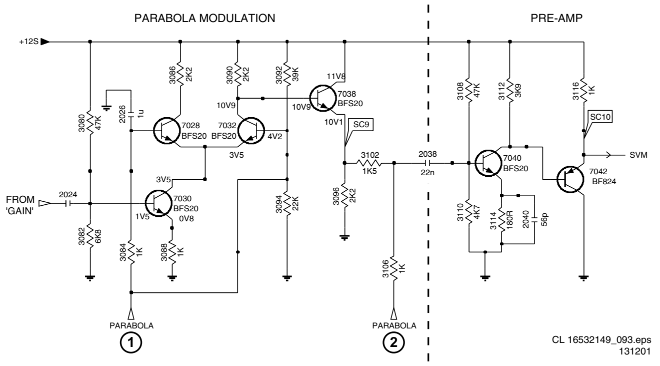

PARABOLA MODULATION
PRE-AMP
+12S
3086 2K2
3090 2K2
3092 39K
11V8
7038 BFS20
10V9
10V9
10V1
SC9
3080 47K
2026 1u
7028 BFS20
7032 BFS20
4V2
3V5
3V5
3102 1K5
2038 22n
3108 47K
3112 3K9
3116 1K
SC10
SVM
7040 BFS20
7042 BF824
FROM 'GAIN'
2024
7030 BFS20
1V5
0V8
3094 22K
3096 2K2
3110 4K7
3114 180R
2040 56p
3082 6K8
3084 1K
3098 1K
3106 1K
PARABOLA
①
PARABOLA
②
CL 16532149_093.eps
131201

Figure 9-14

The Scavem signal enters at the base of transistor 7030. Transistors 7028 and 7032 are complementary. Normally, the same current goes through both components, but because on one of them (7028) the parabola signal is offered, the Scavem signal is now modulated and inverted.
After buffer 7038, the parabola signal is again added to the (now inverted) signal, so that only the modulated signal is available on the input of the pre-amplifier (items 7040 and 7042).

Pre-amplification is done via a voltage amplifier (7040) and an emitter follower (7042).

Final Amplifier (Diagram F)

Stage 8

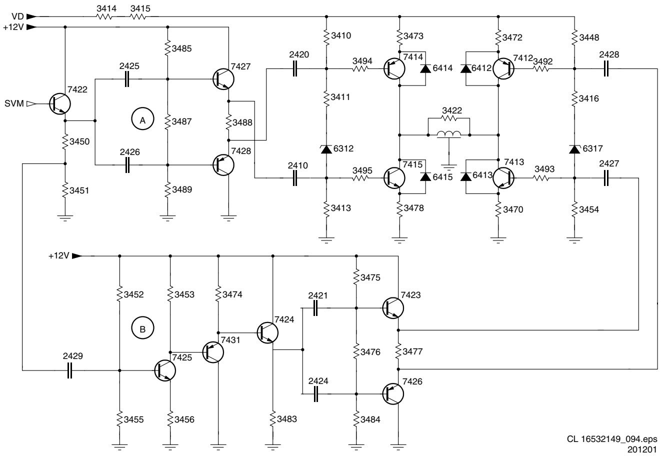

VD
+12V
3414
3415
3485
7427
7422
2425
SVM
A
3487
3488
3450
2426
7428
3451
3489
3410
2420
3494
3473
7414
6414
6412
3472
7412
3492
3448
2428
3411
3416
3422
6312
6317
2410
3495
7415
6415
6413
7413
3493
2427
3413
3478
3470
3454
+12V
3475
3452
3453
3474
2421
7423
B
7424
7431
2429
7425
3476
3477
2424
7426
3455
3456
3483
3484
CL 16532149_094.eps
201201

Figure 9-15

Finally, the Auto Scavem signal arrives, via emitter follower 7422, at stage [A] on the CRT panel. Transistors 7427 and 7428, together with power transistors 7414 and 7415, form the power amplifier, which can deliver the high Scavem currents. From the emitter of 7422, a signal is taken for stage [B]. This signal is **inverted** by transistor 7425 and buffered by 7431 and 7424. The next stage is identical to that of stage [A].
At a positive alteration of the Scavem signal, transistors 7427 and 7415 in stage [A] will conduct, while 7428 and 7414 are blocked. In stage 'B', the positive pulse is inverted, so transistors 7426 and 7412 will conduct, while both 7423 and 7413 are blocked. The Scavem current will flow now, via transistor 7412, through the Scavem coil and then through 7415.
During negative alterations, the current will flow through transistor 7414, the Scavem coil, and transistor 7413.

9.6 Wireless Surround Amplifier (Diagram W)

This module is also used in the MG3.1E, but the circuit was not described yet.

9.6.1 Block Diagram

Wireless Surround Amplifier

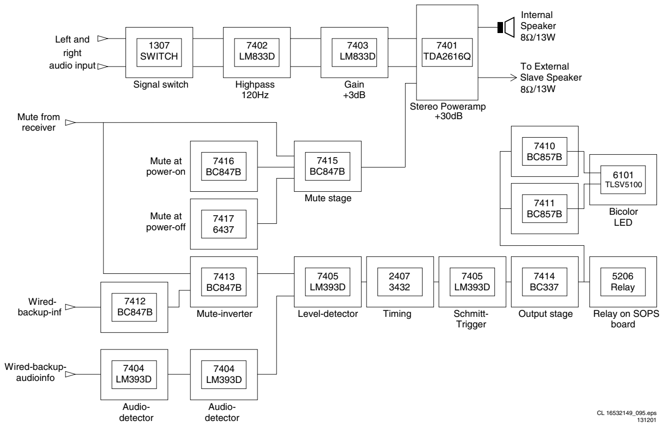

Left and right audio input
1307 SWITCH
Signal switch
7402 LM833D
Highpass 120Hz
7403 LM833D
Gain +3dB
7401 TDA2616Q
Stereo Poweramp +30dB
Internal Speaker 8Ω/13W
To External Slave Speaker 8Ω/13W
Mute from receiver
Mute at power-on
7416 BC847B
7415 BC847B
Mute stage
Mute at power-off
7417 6437
7410 BC857B
7411 BC857B
6101 TLSV5100
Bicolor LED
Wired-backup-inf
7412 BC847B
7413 BC847B
Mute-inverter
7405 LM393D
Level-detector
2407 3432
Timing
7405 LM393D
Schmitt-Trigger
7414 BC337
Output stage
5206 Relay
Relay on SOPS board
Wired-backup-audioinfo
7404 LM393D
Audio-detector
7404 LM393D
Audio-detector
CL 16532149_095.eps
131201

Figure 9-16

9.6.2 Amplifier (Diagram W1)

The used amplifier, TDA2616Q, is a stereo power amplifier with voltage gain of 30 dB. This power amp can deliver 2 x 12.5 W into 8 Ω load. Here the amplifier is used with a symmetrical power supply, therefore no output capacitors are necessary. To avoid oscillations, a so-called 'Boucherot network' (R3453-C2433, and R3452-C2434) is placed on both outputs.

The amplifier is powered by a symmetrical power supply. Main components are: the mains transformer, diodes 6407-6418, and capacitors 2404-2405. The measured ouput voltage varies between: +/- 14.5 and 19 V_{DC}. This depends of the delivered output power in both speakers (at nominal mains voltage).

IC7402 and all passive components around this part, form a high pass filter (-3 dB/120 Hz). This filter is implemented because the used box and speaker are not intended to reproduce low frequencies. A pre-amp, IC7403, gives an additional 3 dB gain to give the whole system the correct sensitivity.

The pre-amplifier and filter-part, work on a symmetrical power supply +/- 9 V_{DC}. These voltages are derived from the main supply with zenerdiodes 6401-6402, resistors 3401-3404, and capacitors 2402-2403

Mute

To ensure 'plop' free operation, some additional circuits are required. The power amp can be muted in three different ways by transistor 7415:

- **At 'power on'.** The circuit around 7416 gives a delayed at start-up, to allow the power supplies to become stable.
- **At 'power down'.** In normal operation, transistor 7417 is 'on', 7415 is 'off', and amplifier 7401 is enabled. At power down, the transistor 7417 is fast switched 'off', 7415 is 'on', and the amplifier is muted before the power supplies become instable. Diode 6437 gives an additional mute when the relay switches off.
- **Mute from the receiver.** When there are perturbations and interferences during the transmission, the mute output line of the receiver (connector 1401 - pin 1) becomes 'high' (4 V_{DC}), and turns 'on' transistor 7415. This will mute the output amplifier.

Timing

When the transmission of AC3 surround signals is ended (e.g. television 'off'), the mute line from the receiver becomes 'high' and mutes the amplifier via TS7415. At the same moment, the output of 7405 becomes 'low'. Now, capacitor 2407 starts discharging into R3432. When the voltage on the positive input of the comparator becomes lower then the voltage on the negative input, the output of the comparator turns from 'high' to 'low' and the relay is switched 'off' by 7414. The established time is 11 until 15 minutes (RC-time R3432/C2407). If the mute line turns 'low' during this discharge period, the capacitor 2407 is charged again and the complete timing is reset.

Wired Backup

When there is no possibility to use the **wireless** link (due to perturbations or interferences), it is possible to use a 'wired' backup solution. On the rear of the box is a backup input. By plugging in a cable with 3.5 mm stereo jack (order under nr. 3104 311 02251), the power supply for the receiver is interrupted. The audio signal enters the amplifier now via this backup input. An audio detector (7404) is added on the amplifier board, to obtain the same functionality when we use the wired backup.
The level detector (7405) is then triggered by the output of the audio detector, i.s.o. the mute line coming from the receiver.

LED control

TS7410 and 7411 control the red or green part of a bicolour LED, according to the voltage on the collector of TS7414.

9.6.3 Power Supply (Diagram W2)

The box can operate in two different modes: 'standby' and 'active' mode.

- In the standby mode all power is delivered by a so-called standby SOPS. This is a self-oscillating power supply, which can deliver 12 V_{DC} for the receiver board and the timing circuitry. The delivered current in the standby mode is rather low, mainly because the receiver board has a 'sleep' period of 3 seconds, and a 'listen' period of 0.2 s.
- In active mode (relay 'on'), the main transformer bypasses the standby supply, and all the needed power is now delivered by this transformer (via diodes 6405-6406 and capacitor 2401). This is done to reduce dissipation in standby mode.

SOPS standby supply: a stable output voltage of 12 V_{DC} is obtained by use of a low-drop voltage regulator L4940V12. The feedback is formed with components R3201, 3204, 3205, 3206, and an optocoupler.
At primary side, there is a rectifier part that produces 350 V_{DC} (items 6206 and 2207). The SOPS is formed by the FET 7207, transformer 5204, current-limiter 7206, 6205, and 6210, a control circuit (7204, 7205, and 6207) and an optocoupler (7203). The whole system works always in 'burst' mode. When a higher current is necessary, the burst period becomes larger, and the burst-repeat frequency increases. The SOPS can operate on mains voltages between 90 and 264V_{AC}.
When the output voltage rises above 20 V_{DC}, (e.g. caused by a fault in the feedback system of the SOPS), the circuit around thyristor 6211 short-circuits the SOPS output. This gives a reliable protection for the whole circuit.

9.7 Abbreviation List

16:9-ARFRONT	16:9 aspect ratio input from side I/O
50Hz/60Hz	50Hz/60Hz mains frequency
6-CHANNEL DAC	6- Channel DAC
ADC	Analogue to Digital Converter
AFC	Automatic Frequency Control
AGC	Automatic Gain Control
AM/FM	Amplitude Modulation/Frequency Modulation
AM-SOUND	Amplitude modulated sound signal
AUDIO_C	Audio Centre
AUDIO_L	Audio Left
AUDIO_R	Audio Right
AUDIO_SL	Audio Surround Left
AUDIO_SW	Audio Subwoofer
AUDIO-L-PROC	Audio Left Processed
AUDIO-R-PROC	Audio Right Processed
AUDIO-SR	Audio Surround Right
AUX-SUPPLY	Auxiliary supply
BC-PROT	Beam Current Protection
BG	System B and G
BLC-INFO	Black Current Information
B-SC1-IN	Blue SCART1 in
B-SC2-IN	Blue SCART2 in
B-TXT	Blue teletext
B-vc	Blue from video-controller
C	Centre
C/16/9	Chrominance input
C-7-OUT	Chrominance on pin 7 SCART (variant)
CENTER	Centre speaker
C-FRONT	Chrominance front input
CL_DS_L	Constant Level Dual Screen Left
CL_DS_R	Constant Level Dual Screen Right
CL_L	Constant Level Left
CL_L_OUT	Constant Level Left out
CL_R	Constant Level Right
CL-R-OUT	Constant Level Right out
CODEC	Coding/Decoding
COMP	Compander ON/OFF
ComPair	Computer aided rePair
CORDL_L	Cordless Left
CORDL_R	Cordless Right
CORE TOP LEVEL	Core Top Level
CRT	Cathode ray tube
CSM	Customer Service Mode
C-UI	Chrominance UI
CVBS	Composite Video Blanking and Synchronisation
CVBS_Y-UI	CVBS Y UI
CVBS-PIP-DS	CVBS Picture In Picture dual Screen
CVBS-SC1-IN	CVBS SCART1 in
CVBS-SC2 OUT	CVBS SCART2 out
CVBS-SC2-IN	CVBS SCART2 in
CVBS-SC3-IN	CVBS SCART3 in
CVBS-SC4-IN	CVBS SCART4 IN
CVBS-TER	CVBS terrestrial
CVBS-TXT-DS-OUT	CBVBS Teletext Dual Screen out
CVBS-TXT-OUT	CVBS Teletext out
CVBS-Y-FRONT	CVBS Luminance front input
D/K	Monochrome TV system. Sound carrier distance is 6.5 MHz
DAC	Digital Analogue Converter
DAC-HOP	Digital Analogue Converter HOP IC
DC_PROT/ AUDIO_SR	DC protection (for supply)
DC-filament	Filament supply voltage
DC-PROT	DC protection
DETECT	Detect signal side I/O input
DFU	Directions For Use: description for the end user
DIG_IN1	Digital In 1
DIG_IN2	Digital In 2

DIGITAL I/O	Digital In/Out
DIG-OUT	Digital Out
DNR	Dynamic Noise Reduction
DS-AUDIO-L	Dual Sound Audio Left
DS-AUDIO-R	Dual Sound Audio Right
DSP	Digital Signal Processing
DST	Dealer Service Tool
DUET	SAA2505H DUET IC
DVD	Digital Versatile Disc
DYN-FASE-COR	Dynamic phase correction
EHT-INFO	Extra High Tension information
EPG	Electronic Programme Guide (= NexTView)
EW-DRIVE	East-West drive signal
FALCONIC	Field And Line rate CONvertor IC
FBCSO	Fixed Beam Current Switch Off
FBL-DS-OUT	Fast Blanking Dual Screen out
FBL-FDS	Fast Blanking Full Dual Screen
FBL-PIP	Fast Blanking PIP
FBL-SC1-IN	Fast Blanking signal for SCART1 in
FBL-SC2-IN	Fast Blanking signal for SCART2 in
FBL-TXT	Fast Blanking Teletext
FDSL-OUT	Full Dual Screen - Left out
FDSR-OUT	Full Dual Screen - Right out
FEAT-U	U from Feature Box
FEAT-V	V from Feature Box
FEAT-Y	Y from Feature Box
FILAMENT	Filament of CRT
FILAMENT-PROT	Filament protection
FLASH	Flash memory
FM SOUND	Frequency Modulation Sound
FRAME ROTATION	Frame rotation
FRAME-ROT +	Frame rotation +
FRONT-C	Front input chrominance (SVHS)
FRONT-DETECT	Front input detection
FRONT-Y_CVBS	Front input luminance or CVBS (SVHS)
GHOST-IN	Signal Ghost cancellation in
G-SC1-IN	Green SCART1 in
G-SC2-IN	Green SCART2 in
G-TXT	Green Teletext
G-vc	Green from video-controller
HA	Horizontal Acquisition
HA1	Horizontal Sync (diversity)
HA-D	Horizontal Sync from HIP-IC to FDS
HD	Horizontal drive coming from PICNIC
Hdefl-1in	Horizontal deflection signal needed for DC-shift circuitry
Hdefl-lin	Horizontal deflection linearity
HEATER	Heater (Filament)
HFB	Horizontal flyback
HFB+13V	Non-rectified output 13V-winding LOT
HFB-D	Horizontal Fly Back to FDS
HIP	High-end Input Processor
HOP	High-end Output Processor
HOSD PIP	Horizontal OSD PIP
HP	Headphone
HS-DS	Main, Horizontal sync input POPOV IC
I2C	Integrated IC bus
I2S	Integrated IC Sound bus
I2S-CL	I2S bus clock
I2S-DSP-IN	I2S digital signal processor in
I2S-DSP-OUT	I2S digital signal processor out
I2S-DSP-OUT1	Serial-DSP-bus-out1
I2S-WS	I2S bus Word Stroke
IF	Intermediate Frequency
IN-C_IN-R-SC2	Either Chrominance-in SCART2 or Red-in SCART pin 15
IN-FRONT-SNDL	Sound Left front in
IN-FRONT-SNDR	Sound Right front in
IN-SC1-B	In SCART1 Blue
IN-SC1-G	In SCART1 Green
IN-SC1-R	In SCART1 Red
IN-SC1-SNDL	In SCART1 Sound Left
IN-SC1-SNDR	In SCART1 Sound Right

IN-SC2-B	In SCART2 Blue
IN-SC2-CVBS_Y	In SCART2 CVBS or Luminance (SVHS)
IN-SC2-FBL	In SCART2 Fast BLanking
IN-SC2-G	In SCART2 Green
IN-UI-B	B input from UI
IN-UI-FBL	Fast Blanking input from UI
IN-UI-G	G input from UI
IN-UI-R	R input from UI
IO-BUS	In/Out bus
IR-LED	Drive signal for the Service Infra Red LED
IRQ	Interrupt ReQuest
KEYBOARD	Top Control
L	Left Audio
L/L'	Monochrome TV system. Sound carrier distance is 6.5 MHz. L' is Band I, L' are all other Bands
LDP	Line Deflection Protection
LED	Light Emitting Diode
LEFT	Left
LEFT_DOWNMIX	LEFT Down mix
LEFT_IN	Left In
LEFT_OUT	Left out
LF	Left output
LIGHT SENSOR	Light sensor
LINE-DRIVE	Line drive signal
LMN	System L, M, N
LNA	Low Noise Adapter
LS CORRECTION	Picture with corrections
LSP	Large Signal Panel
LV-	Frame coil sink signal to the N/S correction circuitry
LV+	Frame coil drive signal from the frame output stage
MCADEC_RESET	Reset signal (Master reset)
MCS-MPEG	Multi channel sound - MPEG
MSP-CLOCK	Clock signal Multi-standard Sound Processor
MUP	Micro Processor
MUTE	Mute line
M/N	Monochrome TV system. Sound carrier distance is 4.5 MHz
N52502	CAD-naming referring to other sub-schedule
NC	Not Connected
NTSC	National Television Standard Committee. Colour system mainly used in the USA and Japan. Colour carrier is at 3.579545 MHz
NVM	Non Volatile Memory
O/C	Open Circuit
ON/OFF LED	On/Off control signal for the LED
OSD	On Screen Display
OTC	OSD, Teletext, and Controller
OUT-1	Y-output POPOV IC
OUT-2	V-output POPOV IC
OUT-3	U-output POPOV IC
OVERRULE-TXT	Overrule Teletext
P2-5	For MG3.1E, status 4 (SCART 4)
P2-6	For MG3.1E, status 3 (SCART 3)
P2-7	In MG3.1E, RGB 1FH/Front UI
P50_OUT	Easy link (= Project 50) data line from SCART2
PAL	Phase Alternating Line. Colour system mainly used in West Europe (colour carrier = 4.433619 MHz) and South America (colour carrier PAL M = 3.575612 MHz and PAL N = 3.582056 MHz)
PCB	Printed Circuit Board
PD	Power Down
PICNIC	Picture Improved Combined Network IC
PILOT	Pilot Signal

PILOTMUTE	Pilot Mute signal
PIP	Picture In Picture
PIP-B	Picture In picture Blue
PIP-FBL	PIP Fast Blanking
PIP-G	Picture In Picture Green
PIP-R	Picture In Picture Red
PLL	Phase Locked Loop. Used for e.g. FST tuning systems.
POPOV	Double Window/PIP IC
POR	Power On Reset, signal to reset the uP
POWER-DOWN MUTE	Power Down Mute
POWER-ON MUTE	Power On Mute
R	Right Audio
RAM	Random Access Memory
RC5	RC5 signal from the remote control
RESET	Reset signal
RESET-AUDIO	Reset signal for Audio IC MSP3410
RESET-AUDIO-INV	Inverted Reset signal for Audio IC MSP3410
RESET-FLASH	Reset signal flash memory
RF	Right output (no companding)
RGB	Red Green Blue colour signals
RIGHT	Right
RIGHT_DOWNMIX	Right Down mix
RIGHT_IN	Right In
RIGHT_OUT	Right out
ROM	Read Only Memory
R-SC1-IN	Red SCART1 in
R-TXT	Red Teletext
R-vc	Red from video-controller
S/C	Short Circuit
SAM	Service Alignment Mode
SC2-B-IN	SCART2 Blue in
SC2-C-IN	SCART2 Chrominance in
SC2FH_IFH	Sand-castle 1fH/2fH
SC2-G-IN	SCART2 Green in
SC2-R-IN C-IN	Red in SCART2 or Chrominance in
SCART	Syndicat des Constructeurs d'Appareils Radiorecepteurs et Televisieurs
Scavem	Scan Velocity Modulation
SCAVEM-SW	Scavem- switch
SCL	Serial clock line of the I2C bus
SCL-F	Clock line of the I2C-bus fast (for TXT)
SCL-S	Clock line of the I2C-bus slow
SDA	Serial Data line of the I2C bus
SDA-F	Data line of the I2C-bus fast (for TXT)
SDA-S	Data line of the I2C-bus slow
SDM	Service Default Mode
SECAM	Sequence Couleur Avec Memoire. Colour system mainly used in France and East Europe. Colour carriers are 4.406250 MHz and 4.250000 MHz
SEL_SOFAC_0	Selection-signal for SOFAC 0
SEL_SOFAC_1	Selection-signal for SOFAC 1
SEL_TO-MCS_LR	Selection switch MCS Left Right
SELECT TO EXT2	Selection of Extern 2 input
SELECT_TO_CORDL_1	Selection signal for Cordless 1
SELECT_TO_MCS_CINCH_0	Selection signal for MCS Cinch 0
SELECT_TO_MCS_CINCH_1	Selection signal for MCS Cinch 1
SELECT-AUDIO CINCH1	Selection of audio via cinch input 1
SELECT-AUDIO-CINCH2	Selection of audio via cinch input 2
SELECT-AUDIO-LR	Selection of Audio Left and Right
SELECT-TO_CORDL_0	Selection signal for Cordless 0
SERVICE-DEFAULT	Service pin to activate SDM
SERVICE-MODE	Service pin to activate SAM
SIF	Sound Intermediate Frequency
SIFM	Sound Intermediate Frequency Mono

SL	Surround Left
SL-ST	Sliding stereo of the Stereo Demodulator IC TDA1578A
SNDL-CL-VL-OUT	Sound Left constant level, variable level out
SNDL-FRONT-IN	Sound Left front in
SNDL-HEADPH-OUT	Sound Left headphone out
SNDL-SC1-IN	Sound L SCART1 in
SNDL-SC1-OUT	Sound Left SCART1 out
SNDL-SC2-IN	Sound Left SCART2 in
SNDL-SC2-OUT	Sound Left SCART2 out
SNDL-SC3-IN	Sound Left SCART3 in
SNDL-SC4-IN	Sound Left SCART4 in
SNDL-UI-IN	Sound Left UI IN
SNDR-CL-VL-OUT	Sound Right constant level, variable level out
SNDR-FRONT-IN	Sound Right front in
SNDR-HEADPH-OUT	Sound Right headphone out
SNDR-SC1-IN	Sound Right SCART1 in
SNDR-SC1-OUT	Sound Right SCART1 out
SNDR-SC2-IN	Sound Right SCART2 in
SNDR-SC2-OUT	Sound Right SCART2 out
SNDR-SC3-IN	Sound Right SCART3 in
SNDR-SC4-IN	Sound Right SCART4 in
SNDS-CL-VL-OUT	Sound surround constant level, variable level out
SNDS-VL-OUT	Surround sound Left variable level out
SNDS-VR-OUT	Surround sound Right variable level out
SOFAC	Sound and Fading Control
SOUND L-HEADPHONE-OUT	Sound Left headphone out
SOUND R-HEADPHONE-OUT	Sound Right headphone out
SOUND-ENABLE	Sound Enable
SOUND-SELECT	Sound signal Selection
SOPS	Self Oscillating Power Supply
SPDIF	Sony Philips Digital Interface Format
SPDIF_IN1	SPDIF In 1
SPDIF_IN2	SPDIF In 2
SS LEFT	Surround Left
SS RIGHT	Surround Right
SSP	Small Signal Panel
STANDARD-FM-1	Standard Frequency Modulation 1
STANDARD-FM-2	Standard Frequency Modulation 2
STANDBY	Standby
STATUS1/2/3	Status signal from Euro-connector 1, 2, or 3 to the P (1.29 - 3.31 V is 16:9 signal, 3.32 - 5 V is 4:3 signal)
STBY	Standby
STEREO	Stereo
SUBCAR	Sub Carrier
SUB-H	Horizontal Sync Sub-TV-Program (via FDS)
SUB-V	Vertical Sync Sub-TV-Program (via FDS)
SUBWOOFER	Subwoofer speaker
SURROUND-LEFT	Surround Left
SURROUND-RIGHT	Surround Right
SW	Subwoofer
SYNC-SELECT	Synchronisation selection
TOPIC	The Outmost Picture Improvement IC
TRIG	Triggering
TUNED	Tuned-flag coming from the IF-IC TDA1597
UB-DEC	U-input for FDS
U-DEC	U-dec (input signal for PICNIC)
U-DS-1FH	U Dual Screen 1 x Horizontal Frequency
U-DS-2FH	U Dual Sound 2 x Horizontal Frequency
U-DS-OUT	U Dual Screen out
UF-DEC	U-MAIN input POPOV IC

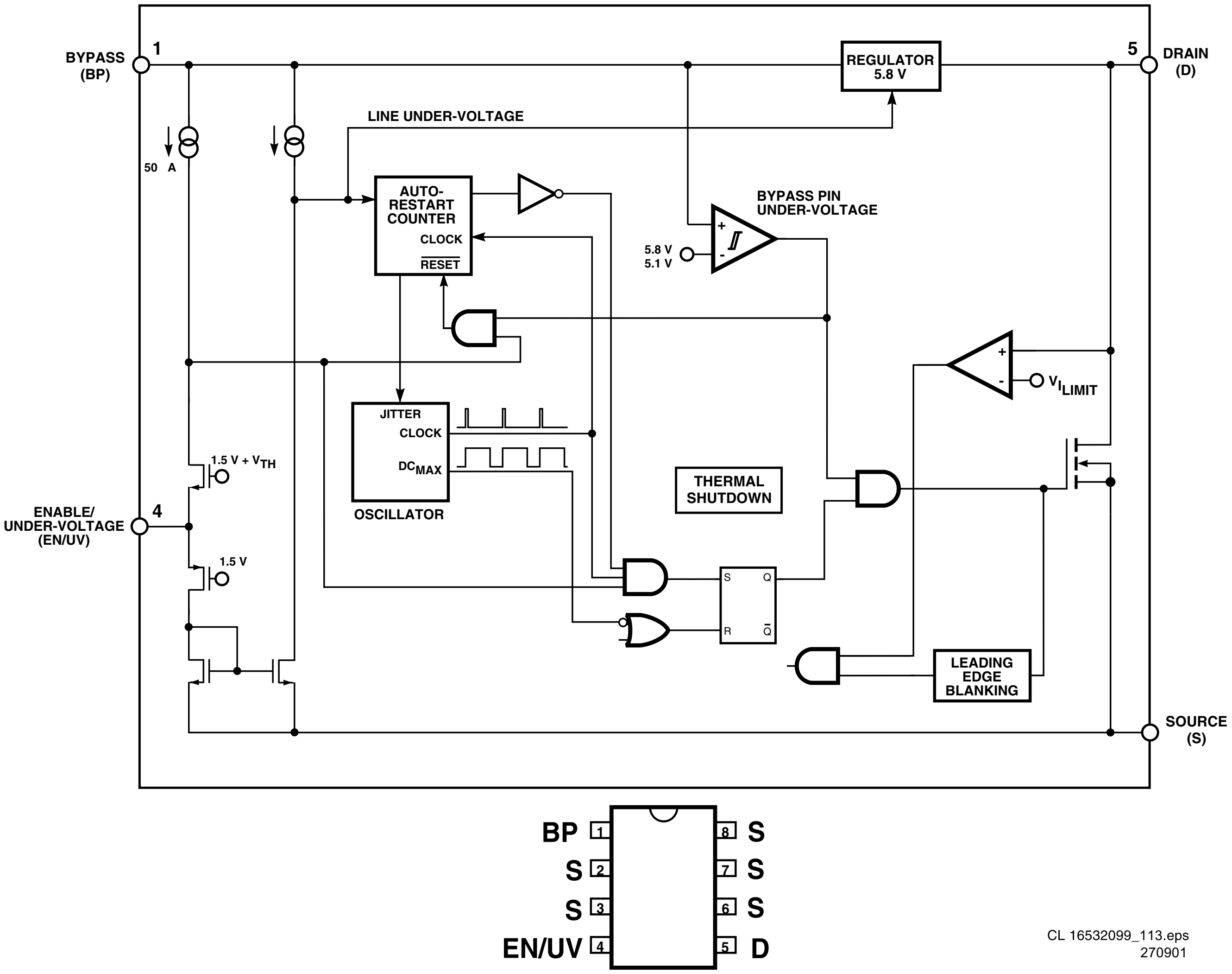
U-FEAT	U-feature-box (output signal from PICNIC)
UF-SUB	U-SUB input POPOV IC
UI	Universal Interface
U-OUT	U-signal to HOP IC
U-SUB	U-output of HIP-IC on FDS
VA	Vertical Acquisition
VA1	Vertical Sync (diversity)
VB-DEC	V input for FDS
VD	Vertical Drive coming from PICNIC
VD-D	Vertical sync to FDS
V-DEC	V-dec (input signal for PICNIC)
VDEFL-1	Vertical deflection connection 1
VDEFL-2	Vertical deflection connection 2
VDNEG	Negative vertical drive signal
VDPOS	Positive vertical drive signal
+VD-switched	Only for VGA sets (VD switched i.s.o. V_bat).
V-DS-1FH	V Dual Screen 1 x Horizontal Frequency
V-DS-2FH	V Dual Screen 2 x Horizontal Frequency
V-DS-OUT	V Dual Screen out
VFB	Vertical Flyback Pulse
VF-DEC	V-MAIN input POPOV IC
V-FEAT	V-Feature box (output signal from PICNIC)
VF-SUB	V-SUB input POPOV IC
VGA-B	VGA Blue
VGA-FBL	VGA Fast-blanking
VGA-G	VGA Green
VGA-R	VGA Red
VL_L	Variable level Left
VL_R	Variable level Right
VL_SL	Variable level Surround Left
VL_SR	Variable level Surround Right
VL_SW	Variable Level Sub-Woofer
VL_SW_DBE	Variable Level Subwoofer Dynamic Bass Enhancement
VLL_C	Variable level Centre
V-OUT	V-signal to HOP-IC
VOUT_C	V-out Centre
VOUT_L	V-out Left
VOUT_R	V-out Right
VOUT_SL	V-out Surround Left
VOUT_SR	V-out Surround Right
VOUT-SW	V-out Subwoofer
VREG	Opto-coupler feedback signal
VS-DS	Main, vertical sync input POPOV IC
V-SUB	V-output of HIP-IC on FDS
WIRED BACKUP-INFO	Wired back up information
WIRED-BACKUP AUDIO INFO	Audio signal (surround)
WIRELESS SURROUND RECEIVER	Wireless Surround receiver
WIRELESS TRANSMITTER	Wireless Transmitter
X-RAY-PROT	X-Ray Protection
X-tal	Quartz crystal
Y/C	Luminance (Y) / Chrominance (C) signal
Y_CVBS-SC2-IN	Luminance or CVBS SCART2 in
YB-DEC	Y input for FDS
Y-DEC	Luminance-dec (input signal for PICNIC)
Y-DS-1FH	Y Dual Screen 1 x Horizontal Frequency
Y-DS-2FH	Y-Dual Screen 2 x Horizontal Frequency
Y-DS-OUT	Y Dual Screen out
YF-DEC	Y-Main input POPOV IC
Y-FEAT	Luminance Feature box (output signal from PICNIC)
YF-SUB	Y-SUB input POPOV IC
Y-OUT	Luminance-signal to HOP-IC
Y-SUB	Y-output of HIP-IC on FDS
YUV	Component video
YUV-SELECT-2FH	YUV selection 2 x Horizontal Frequency
uP	Micro Processor

9.8 IC Data Sheets

In this paragraph, the internal block diagrams and pinning are given of ICs that are drawn as a 'black box' in the electrical diagrams (with the exception of 'memory' and 'logic' ICs).

9.8.1 Diagram B, TNY256 (IC7103)

Internal Block Diagram and Pinning


BYPASS
(BP)
1
REGULATOR
5.8 V
5
DRAIN
(D)
LINE UNDER-VOLTAGE
50 A
AUTO-
RESTART
COUNTER
CLOCK
RESET
BYPASS PIN
UNDER-VOLTAGE
5.8 V
5.1 V
+
-
V
ILIMIT
JITTER
CLOCK
DCMAX
OSCILLATOR
1.5 V + VTH
THERMAL
SHUTDOWN
ENABLE/
UNDER-VOLTAGE
(EN/UV)
4
1.5 V
S
Q
R
Q
LEADING
EDGE
BLANKING
SOURCE
(S)
BP 1
S 2
S 3
EN/UV 4
8 S
7 S
6 S
5 D

CL 16532099_113.eps
270901

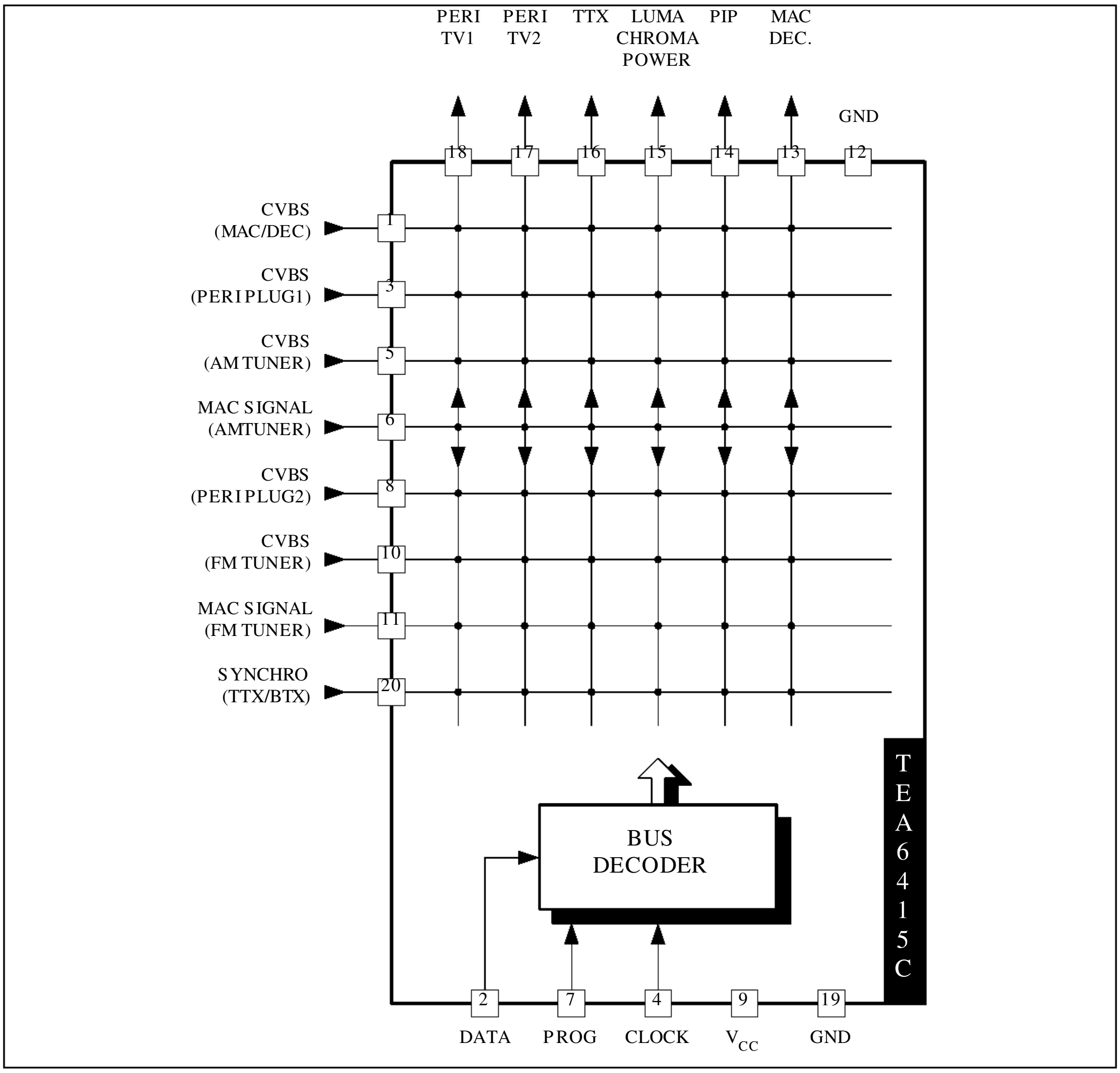
Figure 9-17

9.8.2 Diagram K8, TEA6415 (IC7208)

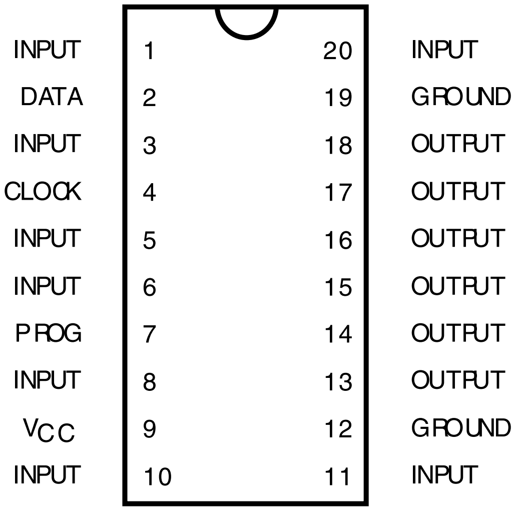
Internal Block Diagram and Pinning

TEA6415C

BLOCK DIAGRAM


PERI TV1
PERI TV2
TTX
LUMA CHROMA POWER
PIP
MAC DEC.
GND
18
17
16
15
14
13
12
CVBS (MAC/DEC)
1
CVBS (PERI PLUG1)
3
CVBS (AM TUNER)
5
MAC SIGNAL (AMTUNER)
6
CVBS (PERI PLUG2)
8
CVBS (FM TUNER)
10
MAC SIGNAL (FM TUNER)
11
SYNCHRO (TTX/BTX)
20
BUS DECODER
TEA6415C
2
7
4
9
19
DATA
PROG
CLOCK
VCC
GND

PIN CONNECTIONS

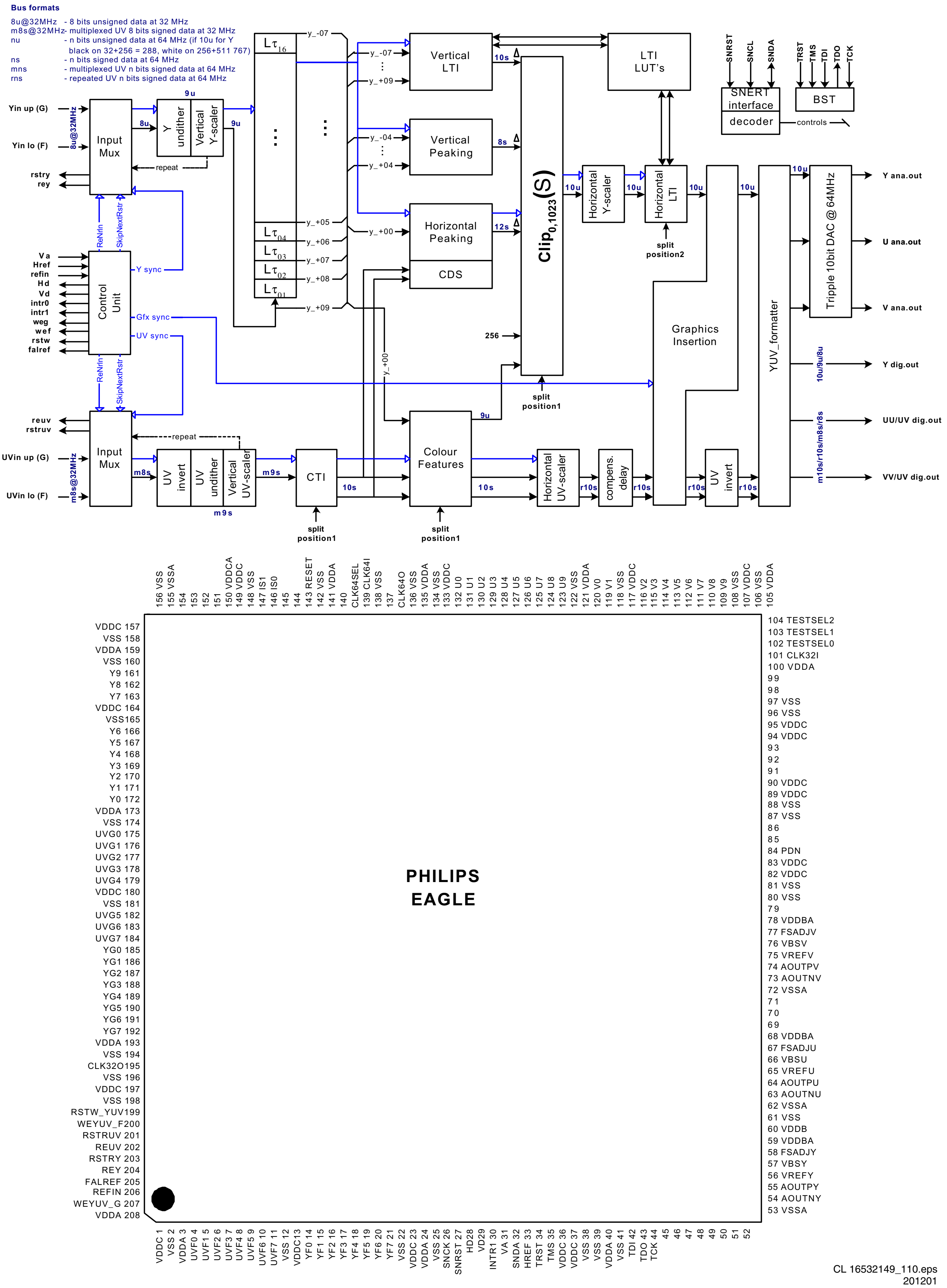

INPUT 1
DATA 2
INPUT 3
CLOCK 4
INPUT 5
INPUT 6
PROG 7
INPUT 8
VCC 9
INPUT 10
20 INPUT
19 GROUND
18 OUTPUT
17 OUTPUT
16 OUTPUT
15 OUTPUT
14 OUTPUT
13 OUTPUT
12 GROUND
11 INPUT

CL 16532149_109.eps
201201

Figure 9-18

9.8.3 Diagram L2, T8F24EF (IC7724)

Internal Block Diagram and Pinning

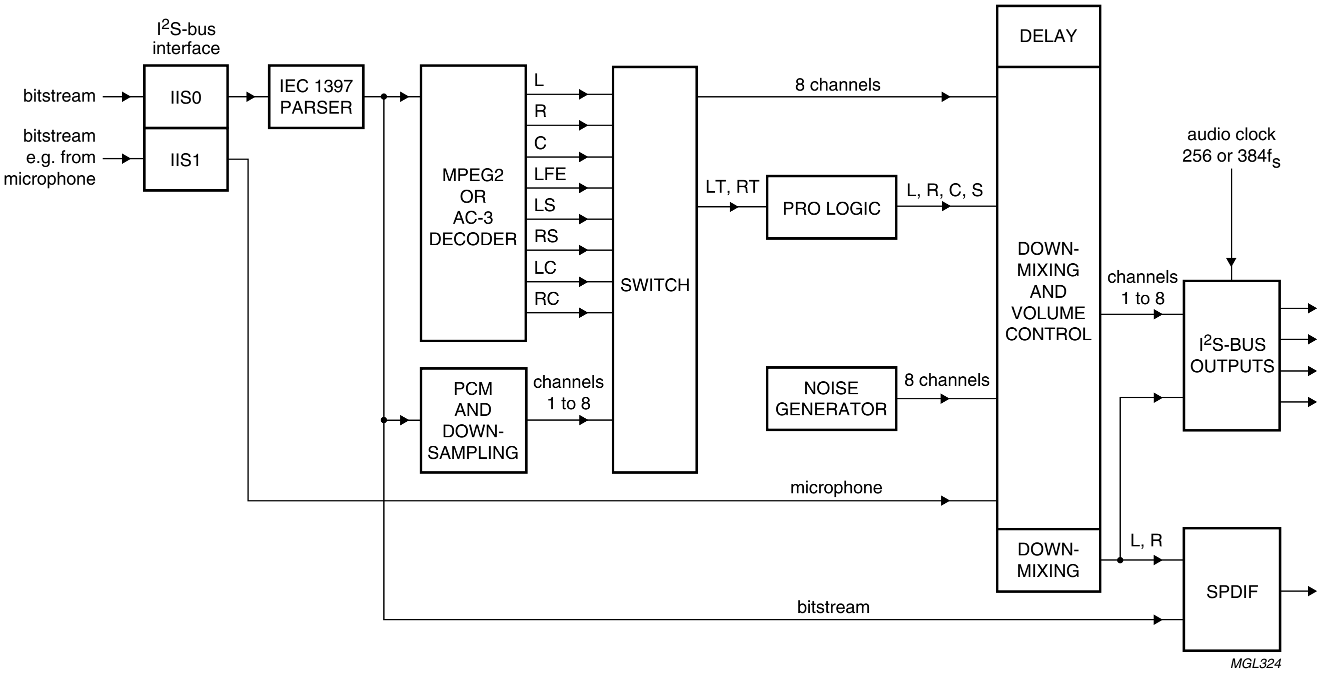

Bus formats
8u@32MHz - 8 bits unsigned data at 32 MHz
m8s@32MHz - multiplexed UV 8 bits signed data at 32 MHz
nu - n bits unsigned data at 64 MHz (if 10u for Y black on 32+256 = 288, white on 256+511 767)
ns - n bits signed data at 64 MHz
mns - multiplexed UV n bits signed data at 64 MHz
rns - repeated UV n bits signed data at 64 MHz
Yin up (G)
Yin lo (F)
8u@32MHz
Input Mux
rstry
rey
8u
9u
Y undither
Vertical Y-scaler
repeat
Lτ16
Lτ04
Lτ03
Lτ02
Lτ01
y_-07
y_+09
y_-04
y_+04
y_+05
y_+06
y_+07
y_+08
y_+00
Vertical LTI
Vertical Peaking
Horizontal Peaking
CDS
10s
8s
12s
Δ
Clip0,1023(S)
256
split position1
LTI LUT's
SNRST
SNCL
SNDA
TRST
TMS
TDI
TDO
TCK
SNERT interface
decoder
BST
controls
Horizontal Y-scaler
Horizontal LTI
10u
split position2
Graphics Insertion
YUV_formatter
Tripple 10bit DAC @ 64MHz
Y ana.out
U ana.out
V ana.out
10u/9u/8u
Y dig.out
m10s/r10s/m8s/r8s
UU/UV dig.out
VV/UV dig.out
ReNrln
SkipNextRstr
Va
Href
refin
Hd
Vd
intr0
intr1
weg
wef
rstw
falref
Control Unit
Y sync
Gfx sync
UV sync
reuv
rstruv
UVin up (G)
UVin lo (F)
m8s@32MHz
m8s
UV invert
UV undither
Vertical UV-scaler
m9s
CTI
Colour Features
9u
Horizontal UV-scaler
compens. delay
r10s
UV invert
156 VSS
155 VSSA
154
153
152
151
150 VDDCA
149 VDDC
148 VSS
147 IS1
146 IS0
145
144
143 RESET
142 VSS
141 VDDA
140
CLK64SEL
139 CLK64I
138 VSS
137
CLK64O
136 VSS
135 VDDA
134 VSS
133 VDDC
132 U0
131 U1
130 U2
129 U3
128 U4
127 U5
126 U6
125 U7
124 U8
123 U9
122 VSS
121 VDDA
120 V0
119 V1
118 VSS
117 VDDC
116 V2
115 V3
114 V4
113 V5
112 V6
111 V7
110 V8
109 V9
108 VSS
107 VDDC
106 VSS
105 VDDA
VDDC 157
VSS 158
VDDA 159
VSS 160
Y9 161
Y8 162
Y7 163
VDDC 164
VSS165
Y6 166
Y5 167
Y4 168
Y3 169
Y2 170
Y1 171
Y0 172
VDDA 173
VSS 174
UVG0 175
UVG1 176
UVG2 177
UVG3 178
UVG4 179
VDDC 180
VSS 181
UVG5 182
UVG6 183
UVG7 184
YG0 185
YG1 186
YG2 187
YG3 188
YG4 189
YG5 190
YG6 191
YG7 192
VDDA 193
VSS 194
CLK32O195
VSS 196
VDDC 197
VSS 198
RSTW_YUV199
WEYUV_F200
RSTRUV 201
REUV 202
RSTRY 203
REY 204
FALREF 205
REFIN 206
WEYUV_G 207
VDDA 208
104 TESTSEL2
103 TESTSEL1
102 TESTSEL0
101 CLK32I
100 VDDA
99
98
97 VSS
96 VSS
95 VDDC
94 VDDC
93
92
91
90 VDDC
89 VDDC
88 VSS
87 VSS
86
85
84 PDN
83 VDDC
82 VDDC
81 VSS
80 VSS
79
78 VDDBA
77 FSADJV
76 VBSV
75 VREFV
74 AOUTPV
73 AOUTNV
72 VSSA
71
70
69
68 VDDBA
67 FSADJU
66 VBSU
65 VREFU
64 AOUTPU
63 AOUTNU
62 VSSA
61 VSS
60 VDDB
59 VDDBA
58 FSADJY
57 VBSY
56 VREFY
55 AOUTPY
54 AOUTNY
53 VSSA
PHILIPS
EAGLE
VDDC 1
VSS 2
VDDA 3
UVF0 4
UVF1 5
UVF2 6
UVF3 7
UVF4 8
UVF5 9
UVF6 10
UVF7 11
VSS 12
VDDC13
YF0 14
YF1 15
YF2 16
YF3 17
YF4 18
YF5 19
YF6 20
YF7 21
VSS 22
VDDC 23
VDDA 24
VSS 25
SNCK 26
SNRST 27
HD28
VD29
INTR1 30
VA 31
SNDA 32
HREF 33
TRST 34
TMS 35
VDDC 36
VDDC 37
VSS 38
VSS 39
VDDA 40
VSS 41
TDI 42
TDO 43
TCK 44
45
46
47
48
49
50
51
52

CL 16532149_110.eps
201201

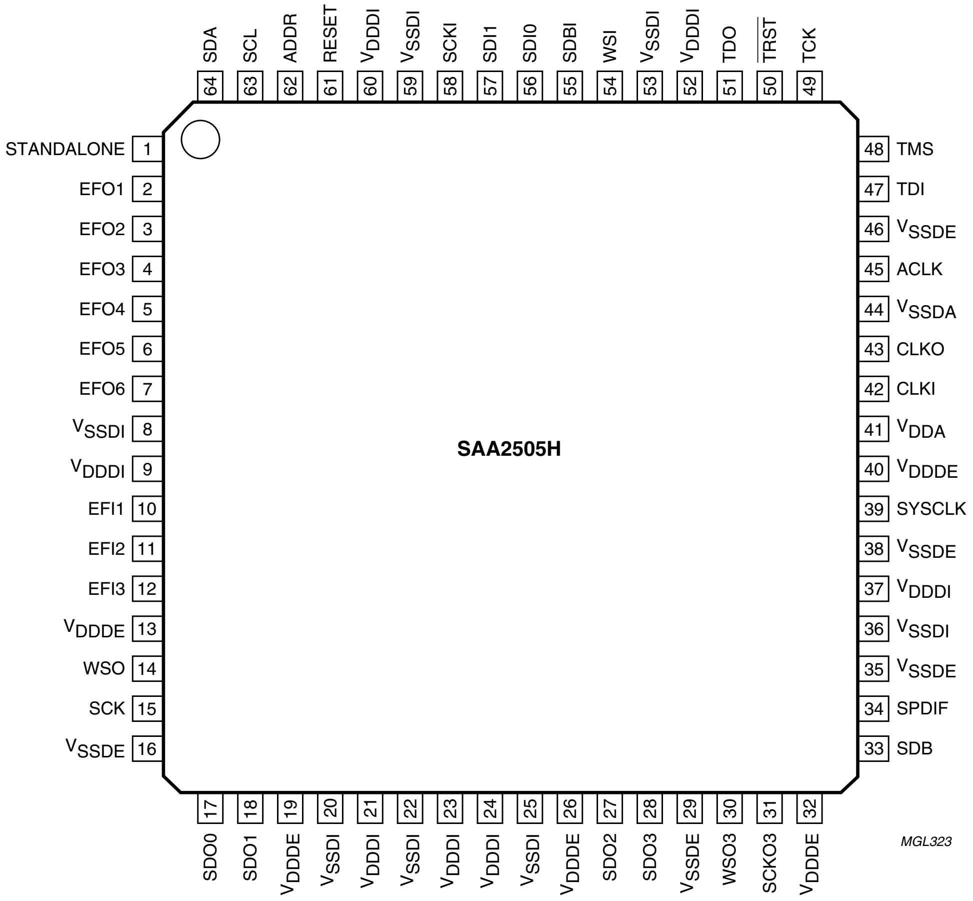
Figure 9-19

9.8.4 Diagram N1, SAA2505 (IC7801)

Internal Block Diagram and Pinning


I2S-bus interface
bitstream
IIS0
bitstream e.g. from microphone
IIS1
IEC 1397 PARSER
MPEG2 OR AC-3 DECODER
L
R
C
LFE
LS
RS
LC
RC
PCM AND DOWN-SAMPLING
channels 1 to 8
SWITCH
8 channels
LT, RT
PRO LOGIC
L, R, C, S
NOISE GENERATOR
8 channels
DELAY
DOWN-MIXING AND VOLUME CONTROL
DOWN-MIXING
microphone
bitstream
audio clock 256 or 384fs
channels 1 to 8
I2S-BUS OUTPUTS
L, R
SPDIF
MGL324

Simplified block diagram.


SAA2505H
1 STANDALONE
2 EFO1
3 EFO2
4 EFO3
5 EFO4
6 EFO5
7 EFO6
8 VSSDI
9 VDDDI
10 EFI1
11 EFI2
12 EFI3
13 VDDDE
14 WSO
15 SCK
16 VSSDE
17 SDO0
18 SDO1
19 VDDDE
20 VSSDI
21 VDDDI
22 VSSDI
23 VDDDI
24 VDDDI
25 VSSDI
26 VDDDE
27 SDO2
28 SDO3
29 VSSDE
30 WSO3
31 SCKO3
32 VDDDE
33 SDB
34 SPDIF
35 VSSDE
36 VSSDI
37 VDDDI
38 VSSDE
39 SYSCLK
40 VDDDE
41 VDDA
42 CLKI
43 CLKO
44 VSSDA
45 ACLK
46 VSSDE
47 TDI
48 TMS
49 TCK
50 TRST
51 TDO
52 VDDDI
53 VSSDI
54 WSI
55 SDBI
56 SDI0
57 SDI1
58 SCKI
59 VSSDI
60 VDDDI
61 RESET
62 ADDR
63 SCL
64 SDA
MGL323

Pin configuration.

CL 16532149_112.eps
201201

Figure 9-20

9.8.5 Diagram U, MC68HC705J1A (IC7708)

Internal Block Diagram and Pinning

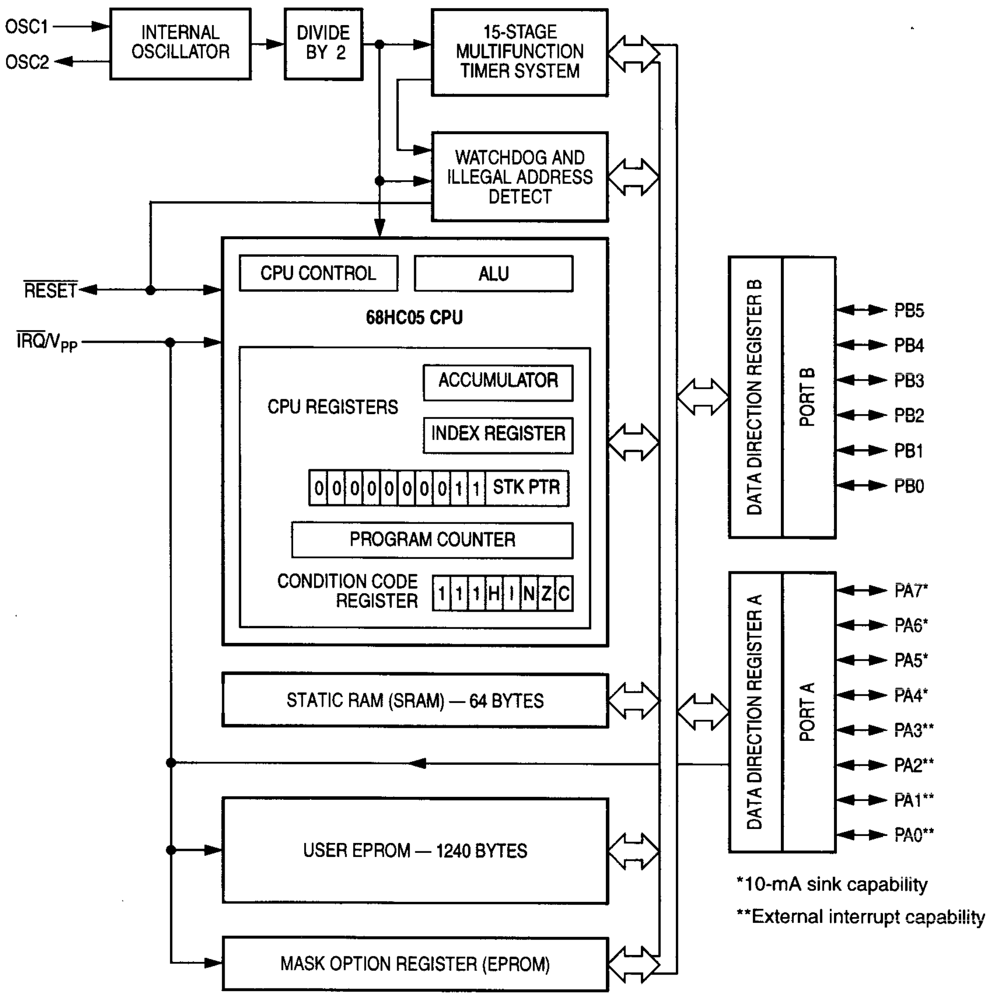

OSC1
OSC2
INTERNAL OSCILLATOR
DIVIDE BY 2
15-STAGE MULTIFUNCTION TIMER SYSTEM
WATCHDOG AND ILLEGAL ADDRESS DETECT
RESET
IRQ/VPP
CPU CONTROL
ALU
68HC05 CPU
CPU REGISTERS
ACCUMULATOR
INDEX REGISTER
0 0 0 0 0 0 0 0 1 1 STK PTR
PROGRAM COUNTER
CONDITION CODE REGISTER
1 1 1 H I N Z C
STATIC RAM (SRAM) — 64 BYTES
USER EPROM — 1240 BYTES
MASK OPTION REGISTER (EPROM)
DATA DIRECTION REGISTER B
PORT B
PB5
PB4
PB3
PB2
PB1
PB0
DATA DIRECTION REGISTER A
PORT A
PA7*
PA6*
PA5*
PA4*
PA3**
PA2**
PA1**
PA0**
*10-mA sink capability
**External interrupt capability

Figure 1-1. Block Diagram

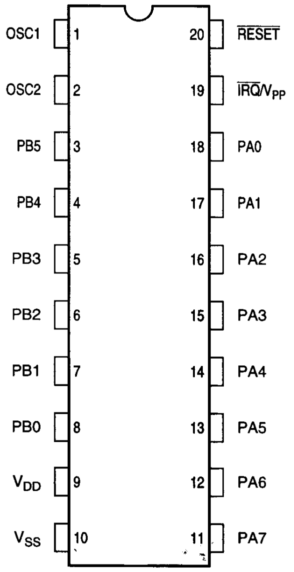

OSC1 1
OSC2 2
PB5 3
PB4 4
PB3 5
PB2 6
PB1 7
PB0 8
VDD 9
VSS 10
20 RESET
19 IRQ/VPP
18 PA0
17 PA1
16 PA2
15 PA3
14 PA4
13 PA5
12 PA6
11 PA7

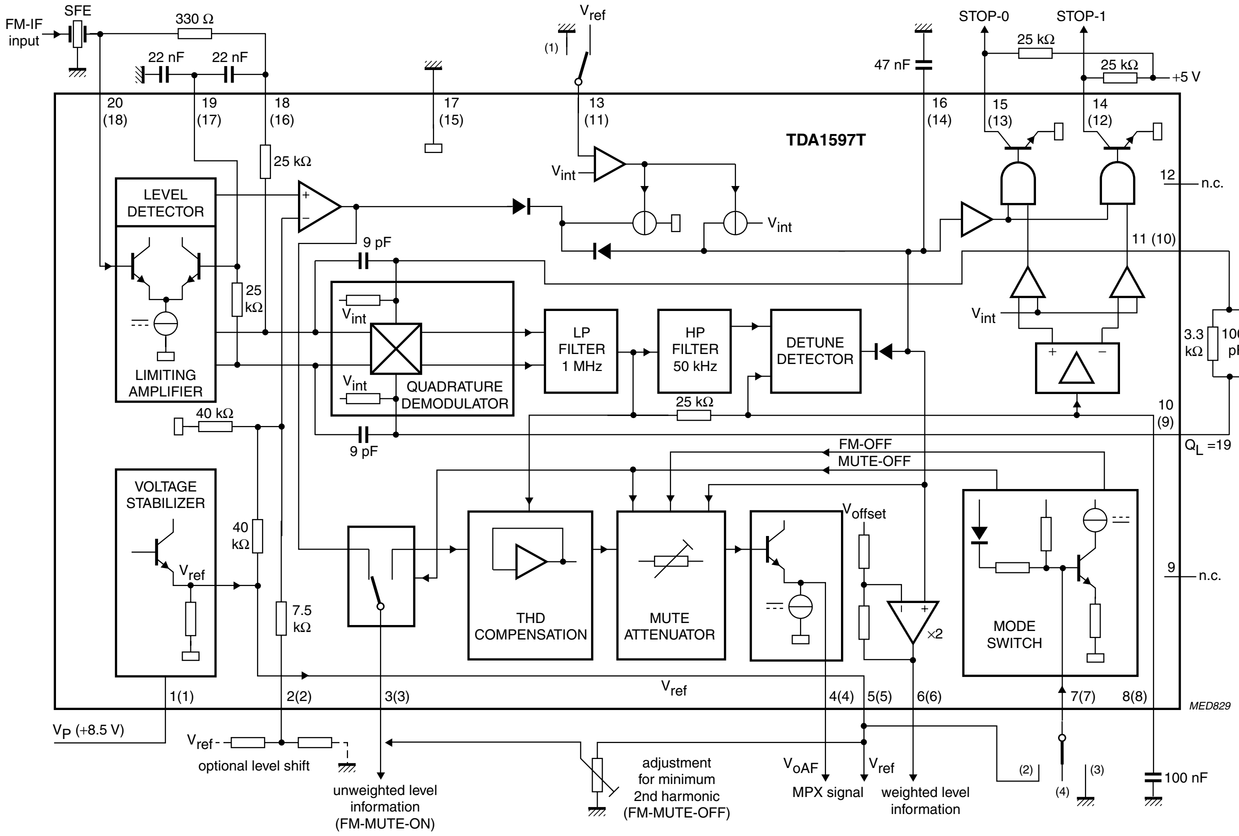
Figure 1-2. Pin Assignments

CL 16532149_114.eps
201201

Figure 9-21

9.8.6 Diagram U, TDA1597 (IC7701)

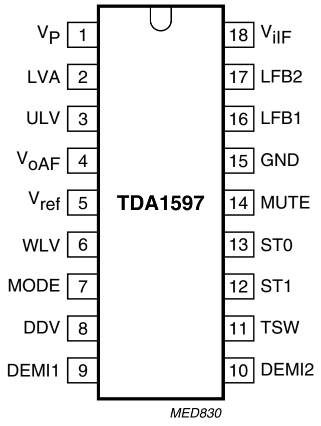
Internal Block Diagram and Pinning


FM-IF input
SFE
330 Ω
22 nF
22 nF
Vref
(1)
47 nF
STOP-0
STOP-1
25 kΩ
25 kΩ
+5 V
20 (18)
19 (17)
18 (16)
17 (15)
13 (11)
16 (14)
15 (13)
14 (12)
TDA1597T
25 kΩ
Vint
12
n.c.
LEVEL DETECTOR
Vint
11 (10)
9 pF
25 kΩ
Vint
LIMITING AMPLIFIER
Vint
QUADRATURE DEMODULATOR
LP FILTER 1 MHz
HP FILTER 50 kHz
DETUNE DETECTOR
25 kΩ
Vint
3.3 kΩ
100 pF
40 kΩ
9 pF
10 (9)
QL =19
FM-OFF
MUTE-OFF
VOLTAGE STABILIZER
Vref
40 kΩ
7.5 kΩ
THD COMPENSATION
MUTE ATTENUATOR
Voffset
×2
MODE SWITCH
9
n.c.
Vref
1(1)
2(2)
3(3)
4(4)
5(5)
6(6)
7(7)
8(8)
MED829
VP (+8.5 V)
Vref
optional level shift
unweighted level information (FM-MUTE-ON)
adjustment for minimum 2nd harmonic (FM-MUTE-OFF)
VoAF
MPX signal
Vref
weighted level information
(2)
(3)
(4)
100 nF

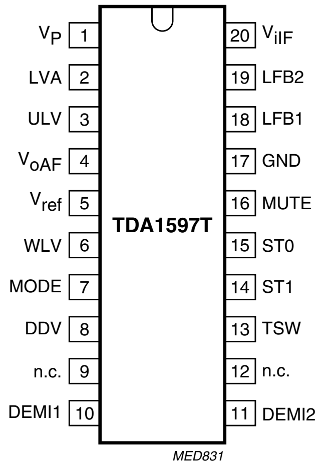
The pin numbers given in parenthesis refer to the TDA1597.

1. (1) Connecting pin 13 (11) to ground is only allowed to measure the current on pin 16 (14).
2. (2) FM-MUTE-OFF.
3. (3) FM-OFF.
4. (4) FM-MUTE-ON.

Block diagram and application circuit.


VP 1
LVA 2
ULV 3
VoAF 4
Vref 5
WLV 6
MODE 7
DDV 8
DEMI1 9
18 ViIF
17 LFB2
16 LFB1
15 GND
14 MUTE
13 ST0
12 ST1
11 TSW
10 DEMI2
TDA1597
MED830

Pin configuration (DIP version).


VP 1
LVA 2
ULV 3
VoAF 4
Vref 5
WLV 6
MODE 7
DDV 8
n.c. 9
DEMI1 10
20 ViIF
19 LFB2
18 LFB1
17 GND
16 MUTE
15 ST0
14 ST1
13 TSW
12 n.c.
11 DEMI2
TDA1597T
MED831

Pin configuration (SO version).

CL 16532149_111.eps
201201

Figure 9-22

10. Spare Parts List

Large Signal Panel [A]

Various

S001	3122 785 90420	28"/32"/36" line repair kit
0030	3104 304 19583	LSP Bracket
0037	3104 304 20264	LOT support bracket
0050	4822 255 41371	Spring line deflection
0051	4822 492 70789	Spring fix transistor
0052	4822 492 70789	Spring fix transistor
0053	3122 121 24785	Spring fix transistor
0054	3122 121 24785	Spring fix transistor
0061	4822 492 70789	Spring fix transistor
0062	4822 492 70789	Spring fix transistor
0065	3104 304 24821	Spacer LOT bracket
0303	4822 267 10774	2P male red
0304	4822 265 20723	2P male black
0311	4822 267 10978	7P male black
0315	4822 267 10979	9P male black
0317	4822 265 20723	2P male
0320	4822 267 10974	9P male
0321	4822 267 10978	7P male black
0324	4822 267 10972	5P male black
0325	4822 267 10967	3P male black
0328	4822 267 10962	11P male v
0335	4822 267 10969	3P male red
0336	4822 267 10967	3P male black
0337	4822 267 10967	3P male black
0338	4822 267 11043	3P male yellow
0390	4822 267 10963	3P male
0391	4822 267 10973	1P male
0393	2422 025 16583	5P female
0394	4822 267 10969	3P male
0395	4822 267 11043	3P male yellow
1460	4822 252 51186	Fuse 2A
8000	3104 311 03272	Eht cable 640 mm
8000	3104 311 03721	Eht cable 820 mm
8015	3104 308 77981	Focus cable 360mm
8300	4822 320 20216	Focus cable 364mm
8301	4822 320 20216	Focus cable 364mm
8304	3104 301 08671	Cable 3P 220 mm
8311	3104 301 08332	Cable 7P 340 mm
8315	3104 301 09611	Cable 9P 340 mm
8317	3104 311 00331	Cable 3P 340 mm
8320	3104 301 08752	Cable 9P 560 mm
8321	3104 301 08682	Cable 7P 180 mm
8324	3104 301 08762	Cable 5P 400 mm
8325	3104 311 00131	Cable 3P 560 mm
8325	3104 311 01971	Cable 3P 140 mm
8328	3104 311 01161	Cable 11P 340 mm
8337	4822 320 12671	Cable 3P 560 mm
8394	3104 311 00421	Cable 3P 480 mm
8395	3104 311 01991	Cable 3P 560 mm
8400	2422 025 16691	3P male

⊣⊢

2400	4822 124 11575	47µF 20% 160V
2401	4822 121 43343	4.7nF 10% 400V
2409	4822 126 12726	47pF 5% 50V
2410	2222 462 90009	4.7nF 2% 250V
2412	5322 121 42489	33nF 5% 250V
2413	4822 124 12255	10µF 20% 50V
2414	5322 121 42489	33nF 5% 250V
2415	5322 122 32334	220pF 10% 100V
2417	4822 121 42408	220nF 5% 63V
2418	4822 126 12263	220pF 10% 1kV
2419	5322 121 44151	33nF 10% 400V
2420	4822 121 70581	1.5nF 5% 2kV
2420	4822 121 70594	1nF 5% 2kV
2420	4822 121 70595	1.2nF 5% 2kV
2422	2038 301 00312	1.2µF 5% 250V
2425	4822 121 10526	9.1nF 5% 2kV
2425	4822 121 70435	10nF 5% 2kV
2426	4822 121 10551	27nF 5% 1600V
2431	5322 122 32331	1nF 10% 100V
2431	5322 122 32818	2.2nF 10% 100V
2433	2022 333 00086	470nF 5% 250V
2433	2022 333 00163	360nF 5% 250V
2433	4822 121 10518	390nF 5% 250V
2436	4822 124 41584	100µF 20% 10V
2437	4822 124 41741	2.2µF 20% 350V
2438	4822 122 33449	47nF 30% 50V
2439	5322 122 32331	1nF 10% 100V
2439	5322 122 32818	2.2nF 10% 100V
2442	4822 124 12297	4.7µF 20% 350V
2448	2020 300 90572	8.2nF 10% 50V
2448	4822 121 41857	10nF 5% 250V
2450	4822 121 40518	100nF 10% 250V
2454	4822 121 42408	220nF 5% 63V
2455	4822 121 43897	1nF 5% 400V
2455	4822 126 12451	820pF 10% 50V
2457	4822 121 70386	47nF 10% 250V
2460	4822 126 13185	680pF 10% 500V
2461	4822 124 11767	470µF 20% 25V
2462	4822 124 81039	3300µF 20% 25V
2463	4822 126 13185	680pF 10% 500V
2465	4822 122 31177	470pF 10% 500V
2466	4822 124 11767	470µF 20% 25V
2480	4822 121 43913	470nF 10% 100V
2480	4822 124 40763	2.2µF 100V
2481	5322 122 32311	470pF 10% 100V
2482	4822 124 22466	1µF 20% 50V
2484	4822 124 40769	4.7µF 20% 100V
2487	4822 124 40248	10µF 20% 63V
2493	2222 479 90166	68nF 5% 400V
2494	4822 124 81144	1000µF 16V
2506	4822 121 10711	100nF 20% 275V
2520	4822 121 43396	120nF 5% 63V
2520	4822 121 43526	47nF 5% 250V
2530	4822 124 21913	1µF 20% 63V
2612	5322 122 32311	470pF 10% 100V
2613	5322 122 32311	470pF 10% 100V
2615	2020 021 91513	100µF 20% 50V
2616	5322 121 42386	100nF 5% 63V
2617	4822 121 42408	220nF 5% 63V
2618	4822 121 51252	470nF 5% 63V
2620	5322 124 40641	10µF 20% 100V
2625	4822 121 43526	47nF 5% 250V
2714	4822 122 10182	100pF 5% 50V
2716	4822 122 10182	100pF 5% 50V
2730	4822 124 40248	10µF 20% 63V
2732	4822 124 12392	47µF 20% 16V
2733	5322 121 42386	100nF 5% 63V
2738	4822 122 10182	100pF 5% 50V
2739	4822 122 10182	100pF 5% 50V
2740	4822 122 30103	22nF 80% 63V
2741	4822 122 30103	22nF 80% 63V
2742	5322 121 42386	100nF 5% 63V
2743	4822 126 12638	6.8nF 10% 50V
2748	4822 121 43526	47nF 5% 250V
2749	4822 121 43526	47nF 5% 250V
2750	4822 122 30103	22nF 80% 63V
2751	4822 122 30103	22nF 80% 63V
2755	4822 126 12638	6.8nF 10% 50V
2756	4822 121 43526	47nF 5% 250V
2757	4822 121 43526	47nF 5% 250V
2760	4822 122 30103	22nF 80% 63V
2761	4822 122 30103	22nF 80% 63V
2762	4822 124 12392	47µF 20% 16V
2763	4822 124 80408	4.7µF 20% 50V
2768	4822 121 43526	47nF 5% 250V
2769	4822 121 43526	47nF 5% 250V
2770	4822 122 30103	22nF 80% 63V
2771	4822 122 30103	22nF 80% 63V
2772	5322 121 42386	100nF 5% 63V
2774	5322 121 42386	100nF 5% 63V
2775	4822 126 12638	6.8nF 10% 50V
2776	4822 121 43526	47nF 5% 250V
2777	4822 121 43526	47nF 5% 250V
2780	4822 124 21913	1µF 20% 63V
2790	4822 124 80061	1000µF 20% 25V
2791	4822 124 80061	1000µF 20% 25V
2792	5322 121 42386	100nF 5% 63V
2793	5322 121 42386	100nF 5% 63V
2794	4822 124 40248	10µF 20% 63V
2795	4822 124 40248	10µF 20% 63V

-▭-

3401	4822 053 12479	47Ω 5% 3W
3404	4822 116 83883	470Ω 5% 0.5W
3406	4822 116 52175	100Ω 5% 0.5W
3407	4822 050 21003	10k 1% 0.6W
3411	4822 116 52195	47Ω 5% 0.5W
3413	4822 116 83883	470Ω 5% 0.5W
3414	4822 116 52226	560Ω 5% 0.5W
3415	4822 053 12229	22Ω 5% 3W
3417	4822 116 52176	10Ω 5% 0.5W
3423	4822 053 10688	6Ω8 5% 1W
3425	4822 116 52176	10Ω 5% 0.5W
3426	4822 116 52176	10Ω 5% 0.5W
3428	4822 116 52245	150k 5% 0.5W
3429	4822 116 83884	47k 5% 0.5W
3431	4822 052 10221	220Ω 5% 0.33W
3431	4822 052 11471	470Ω 5% 0.5W
3432	4822 116 83884	47k 5% 0.5W
3436	4822 116 52269	3k3 5% 0.5W
3437	4822 116 52245	150k 5% 0.5W
3438	4822 050 23303	33k 1% 0.6W
3440	4822 050 23303	33k 1% 0.6W
3441	4822 116 52272	330k 5% 0.5W
3442	4822 116 83874	220k 5% 0.5W
3443	4822 052 11688	6Ω8 5% 0.5W
3444	4822 050 23303	33k 1% 0.6W
3445	4822 116 52256	2k2 5% 0.5W
3446	4822 050 11002	1k 1% 0.4W
3447	4822 052 10229	22Ω 5% 0.33W
3448	4822 116 52252	180k 5% 0.5W
3448	4822 116 52291	56k 5% 0.5W
3449	4822 050 21003	10k 1% 0.6W
3449	4822 116 52176	10Ω 5% 0.5W
3450	4822 116 83884	47k 5% 0.5W
3451	4822 050 23303	33k 1% 0.6W
3451	4822 116 52264	27k 5% 0.5W
3452	4822 116 52257	22k 5% 0.5W
3452	4822 116 52264	27k 5% 0.5W
3453	4822 116 80176	1Ω 5% 0.5W
3454	4822 116 52291	56k 5% 0.5W
3454	4822 116 83882	39k 5% 0.5W
3454	4822 116 83884	47k 5% 0.5W
3455	4822 116 83874	220k 5% 0.5W
3457	4822 050 12704	270k 1% 0.4W
3457	4822 116 52292	560k 5% 0.5W
3457	4822 116 52298	680k 5% 0.5W
3458	4822 116 52252	180k 5% 0.5W
3458	4822 116 52272	330k 5% 0.5W
3458	4822 116 52304	82k 5% 0.5W
3459	4822 116 83883	470Ω 5% 0.5W
3462	4822 052 11108	1Ω 5% 0.5W
3463	4822 052 11108	1Ω 5% 0.5W
3464	4822 050 11002	1k 1% 0.4W
3465	4822 052 10151	150Ω 5% 0.33W
3466	4822 052 11108	1Ω 5% 0.5W
3467	4822 052 11108	1Ω 5% 0.5W
3468	4822 052 10151	150Ω 5% 0.33W
3478	4822 116 83872	220Ω 5% 0.5W
3480	4822 116 52291	56k 5% 0.5W
3481	4822 052 10102	1k 5% 0.33W
3482	4822 116 52272	330k 5% 0.5W
3483	4822 052 10478	4Ω7 5% 0.33W
3484	4822 052 10338	3Ω3 5% 0.33W
3484	4822 052 10478	4Ω7 5% 0.33W
3484	4822 052 10688	6Ω8 5% 0.33W
3485	4822 050 21006	10M 1% 0.6W
3485	4822 050 27505	7M5 1% 0.6W
3486	4822 116 52234	100k 5% 0.5W
3487	4822 052 10133	13k 5% 0.33W
3488	4822 050 11002	1k 1% 0.4W
3489	4822 116 52191	33Ω 5% 0.5W
3490	4822 116 83874	220k 5% 0.5W
3491	4822 116 83874	220k 5% 0.5W
3492	4822 050 23303	33k 1% 0.6W
3493	4822 050 11002	1k 1% 0.4W
3498	4822 116 83872	220Ω 5% 0.5W
3506	4822 117 12027	PTC 18Ω-3k 25%
3507	4822 117 12027	PTC 18Ω-3k 25%
3509	4822 052 10472	4k7 5% 0.33W
3510	4822 050 21003	10k 1% 0.6W
3511	4822 116 52263	2k7 5% 0.5W
3512	4822 116 52191	33Ω 5% 0.5W
3520	2138 101 13753	75k 5% 0.5W
3520	4822 116 52234	100k 5% 0.5W
3521	4822 050 18204	820k 1% 0.4W
3521	4822 116 83866	1M 5% 0.5W
3530	4822 050 21003	10k 1% 0.6W
3531	4822 116 52257	22k 5% 0.5W
3531	4822 116 83884	47k 5% 0.5W
3532	4822 050 18204	820k 1% 0.4W
3532	4822 116 52298	680k 5% 0.5W
3601	4822 116 80676	1Ω5 5% 0.5W
3602	4822 116 80176	1Ω 5% 0.5W
3602	4822 116 80676	1Ω5 5% 0.5W
3603	4822 116 80176	1Ω 5% 0.5W
3610	4822 050 11002	1k 1% 0.4W
3611	4822 050 28201	820Ω 1% 0.6W
3612	4822 050 28201	820Ω 1% 0.6W
3613	4822 050 11002	1k 1% 0.4W
3614	4822 050 11002	1k 1% 0.4W
3617	4822 052 10158	1Ω5 5% 0.33W
3618	4822 116 52195	47Ω 5% 0.5W
3618	4822 116 83872	220Ω 5% 0.5W
3619	4822 116 52195	47Ω 5% 0.5W
3619	4822 116 83872	220Ω 5% 0.5W
3620	4822 050 21003	10k 1% 0.6W
3625	4822 116 52175	100Ω 5% 0.5W

3630	4822 116 52289	5k6 5% 0.5W
3703	4822 116 80176	1Ω 5% 0.5W
3721	4822 116 52234	100k 5% 0.5W
3722	4822 116 52234	100k 5% 0.5W
3725	4822 116 52234	100k 5% 0.5W
3726	4822 116 52234	100k 5% 0.5W
3728	4822 116 52234	100k 5% 0.5W
3729	4822 116 52234	100k 5% 0.5W
3730	4822 116 83883	470Ω 5% 0.5W
3731	4822 116 83884	47k 5% 0.5W
3732	4822 116 83884	47k 5% 0.5W
3733	4822 116 52207	1k2 5% 0.5W
3734	4822 116 52257	22k 5% 0.5W
3735	4822 116 83961	6k8 5%
3740	4822 116 52256	2k2 5% 0.5W
3741	4822 116 52226	560Ω 5% 0.5W
3743	4822 116 80176	1Ω 5% 0.5W
3745	4822 117 12798	8Ω2 5% 0.25W
3751	4822 116 80176	1Ω 5% 0.5W
3752	4822 116 52256	2k2 5% 0.5W
3753	4822 116 52226	560Ω 5% 0.5W
3754	4822 117 12798	8Ω2 5% 0.25W
3760	4822 116 52256	2k2 5% 0.5W
3761	4822 116 52226	560Ω 5% 0.5W
3763	4822 116 80176	1Ω 5% 0.5W
3765	4822 117 12798	8Ω2 5% 0.25W
3772	4822 116 52256	2k2 5% 0.5W
3773	4822 116 52226	560Ω 5% 0.5W
3774	4822 117 12798	8Ω2 5% 0.25W
3780	4822 116 52289	5k6 5% 0.5W
3781	4822 116 52289	5k6 5% 0.5W
3782	4822 116 52289	5k6 5% 0.5W
3783	4822 116 52289	5k6 5% 0.5W
3785	4822 116 52263	2k7 5% 0.5W
3786	4822 116 52269	3k3 5% 0.5W
3787	4822 050 21003	10k 1% 0.6W
3790	4822 116 52234	100k 5% 0.5W
3791	4822 116 52234	100k 5% 0.5W

∿∿

5400	4822 157 71467	39µH 10%
5401	4822 157 71452	18µH 10%
5410	4822 146 11066	Line driver transf.
5421	3128 138 55611	Linearity coil (36")
5421	3128 138 56152	Linearity coil (28")
5421	3128 138 57411	Linearity coil (32")
5422	4822 146 11137	Bridge coil
5423	4822 157 71097	0.56µH
5425	4822 157 11411	Bead 100mHz
5426	4822 157 11771	0.09µH 10%
5430	3128 138 20931	LOT CML16 (32"/36")
5430	8204 000 75001	LOT (28")
5460	4822 157 71466	2.2µH 20%
5462	4822 157 71466	2.2µH 20%
5466	4822 157 71441	15µH 10%
5466	4822 157 71452	18µH 10%
5468	4822 157 10452	10µH 10%
5468	4822 157 71452	18µH 10%
5480	4822 157 63253	Choke
5490	4822 526 10704	Bead 100mHz
5491	4822 526 10704	Bead 100mHz
5493	8228 001 34391	Driver Transformer CU15
5501	4822 157 11422	12µH 10%
5502	4822 157 11422	12µH 10%
5617	4822 157 11771	0.09µH 10%
5701	4822 157 11299	10µH 5%
5702	4822 157 11299	10µH 5%

→|

6407	4822 130 42488	BYD33D
6408	4822 130 42488	BYD33D
6410	4822 130 30621	1N4148
6421	9322 165 72687	DTV1500MFP
6422	4822 130 10218	BY229X-800
6437	4822 130 30621	1N4148
6441	4822 130 42488	BYD33D
6451	4822 130 34382	BZX79-B8V2
6452	4822 130 30621	1N4148
6453	4822 130 34142	BZX79-B33
6454	4822 130 30842	BAV21
6480	4822 130 61219	BZX79-B10
6483	4822 130 30842	BAV21
6484	4822 130 30621	1N4148
6485	4822 130 30621	1N4148
6486	4822 130 30621	1N4148
6489	3139 120 52021	BYV29X-500
6490	3139 120 52021	BYV29X-500
6491	3139 120 52021	BYV29X-500
6495	4822 130 30621	1N4148
6496	4822 130 30621	1N4148
6530	4822 130 30621	1N4148
6608	4822 130 34174	BZX79-B4V7
6609	4822 130 31983	BAT85
6610	4822 130 30621	1N4148
6614	5322 130 31938	BYV27-200
6617	4822 130 42488	BYD33D
6618	5322 130 32296	BZV85-C10
6618	5322 130 33635	BZV85-C8V2
6620	4822 130 42488	BYD33D
6790	5322 130 34563	BZX79-C2V7
6791	5322 130 34563	BZX79-C2V7

⊗ ▭

7409	4822 130 40959	BC547B
7411	5322 130 44349	BC635
7421	9340 210 30127	BU2520DX
7437	4822 130 44568	BC557B
7440	4822 209 70672	LM358N Selected
7441	4822 130 40959	BC547B
7442	4822 130 44568	BC557B
7480	4822 130 11336	STP16NE06FP
7484	4822 209 70672	LM358N Selected
7490	4822 130 44568	BC557B
7600	4822 209 90009	TDA8177
7710	5322 209 86445	LM7805CT
7720	4822 209 11079	LM79M05CT
7730	4822 130 44568	BC557B
7731	4822 130 40959	BC547B
7732	4822 130 40959	BC547B
7733	4822 130 40959	BC547B
7740	4822 209 32641	TDA2616Q
7750	4822 209 32641	TDA2616Q
7760	4822 209 32641	TDA2616Q
7770	4822 209 32641	TDA2616Q
7780	4822 130 40959	BC547B

Top Supply Panel [B]

Various

S002	3122 785 90440	Standby supply repair kit
S003	3122 785 90430	Main supply repair kit
0001	3104 304 19652	Power supply frame
0052	3122 121 24785	Spring fix transistor
0053	3122 121 24785	Spring fix transistor
0056	3122 121 24785	Spring fix transistor
0057	3122 121 24785	Spring fix transistor
0066	3122 121 24785	Spring fix transistor
0067	3122 121 24785	Spring fix transistor
0072	4822 466 93461	Insulator 20 X 25
0150	4822 265 11253	Fuse holder
0151	4822 265 11253	Fuse holder
0302	2422 025 16374	2P Male
0304	4822 265 20723	3P Male
0310	4822 267 10964	9P Male red
0320	4822 267 10974	9P Male
0321	4822 267 10978	7P Male black
0330	2422 025 14904	7P Male
1001	4822 253 30467	Fuse 6,3A
1002	2422 132 07411	Relay 1P 5V 5A
1003	4822 070 33152	Fuse 3.15A
1005	4822 252 60151	Surge Protect
1006	4822 252 51173	Fuse 1,0A
1007	2422 132 07409	Relay 2P 12V 5A

⊣⊢

2000	4822 126 13589	470nF 275V
2001	4822 124 11913	22nF 20% 275V
2002	4822 124 11913	22nF 20% 275V
2007	4822 121 41857	10nF 5% 250V
2009	4822 121 41857	10nF 5% 250V
2100	2020 024 90718	10µF 20% 450V
2101	2252 561 55609	68pF 5% 1kV
2102	5322 121 42386	100nF 5% 63V
2103	5322 121 42386	100nF 5% 63V
2104	2020 012 93057	2200µF 20% 16V
2105	5322 122 32818	2.2nF 10% 100V
2106	4822 126 14208	220pF 20% 250V
2111	5322 121 42386	100nF 5% 63V
2201	4822 124 42159	330µF 20% 400V
2202	4822 124 11767	470µF 20% 25V
2203	4822 124 80144	220µF 20% 25V
2204	5322 121 51214	680pF 1% 400V
2205	4822 121 51288	100pF 630V
2207	4822 121 41854	150nF 5% 63V
2208	5322 121 42386	100nF 5% 63V
2210	4822 126 13451	2.2nF 10% 2kV
2211	2222 375 90224	39nF 5% 1kV
2212	4822 126 13862	1.5nF 10% 2kV
2213	4822 126 13862	1.5nF 10% 2kV
2214	4822 126 14504	3.3nF 20% 250V
2215	4822 122 30043	10nF 80% 63V
2216	5322 121 42386	100nF 5% 63V
2217	4822 124 40207	100µF 20% 25V
2219	4822 122 30043	10nF 80% 63V
2220	4822 124 12417	2200µF 20% 25V
2221	4822 124 12417	2200µF 20% 25V
2222	2020 021 91503	1000µF 5% 35V
2223	4822 124 11572	47µF 20% 160V
2225	5322 122 32331	1nF 10% 100V
2226	5322 121 42386	100nF 5% 63V
2227	4822 121 43897	1nF 5% 400V
2228	4822 124 81151	22µF 50V
2230	4822 124 11878	4700µF 16V
2231	4822 121 41854	150nF 5% 63V
2232	4822 122 30043	10nF 80% 63V
2233	4822 122 30043	10nF 80% 63V
2234	2020 021 91503	1000µF 5% 35V
2235	5322 122 32331	1nF 10% 100V
2236	4822 124 11767	470µF 20% 25V
2237	4822 122 31175	1nF 10% 500V
2238	5322 121 42386	100nF 5% 63V
2239	4822 121 42062	150 nF 10% 400V
2240	5322 122 32261	4.7nF 10% 100V
2241	4822 122 30043	10nF 80% 63V
2242	4822 122 33449	47nF 30% 50V
2244	4822 126 12263	220pF 10% 1kV
2245	4822 126 10206	2.2nF 10% 500V
2246	4822 126 10206	2.2nF 10% 500V
2250	5322 122 32331	1nF 10% 100V
2251	4822 121 51305	15nF 10% 50V
2252	5322 122 32818	2.2nF 10% 100V
2253	4822 121 51252	470nF 5% 63V
2260	4822 122 30103	22nF 80% 63V
2261	4822 126 10206	2.2nF 10% 500V
2262	4822 126 10206	2.2nF 10% 500V
2263	5322 122 32311	470pF 10% 100V
2264	5322 122 32311	470pF 10% 100V
2265	2020 300 90565	2.7nF 10% 50V
2266	4822 121 10766	390pF 1% 630V
2267	4822 124 22652	2.2µF 20% 50V
2268	4822 124 22652	2.2µF 20% 50V
2269	5322 121 42386	100nF 5% 63V
2271	5322 122 32331	1nF 10% 100V
2272	5322 122 32331	1nF 10% 100V
2274	4822 122 33799	1nF 10% 1kV
2275	4822 122 31175	1nF 10% 500V
2276	5322 122 32331	1nF 10% 100V
2277	5322 122 32818	2.2nF 10% 100V
2279	4822 121 70654	2.2nF 10% 50V
2280	4822 124 22652	2.2µF 20% 50V
2281	4822 124 22652	2.2µF 20% 50V

-▭-

3001	2322 595 90022	VDR 1mA/612V max 1120V
3002	3198 013 04710	470Ω 20% 0.5W
3003	4822 116 52256	2k2 5% 0.5W
3004	4822 116 52234	100k 5% 0.5W
3007	4822 116 52283	4k7 5% 0.5W
3008	4822 116 52256	2k2 5% 0.5W
3009	4822 050 21003	10k 1% 0.6W
3108	4822 116 52176	10Ω 5% 0.5W
3110	4822 052 10688	6Ω8 5% 0.33W
3112	4822 050 11002	1k 1% 0.4W
3113	4822 116 52256	2k2 5% 0.5W
3114	4822 050 24702	4k7 1% 0.6W
3115	4822 050 24702	4k7 1% 0.6W
3118	4822 116 52257	22k 5% 0.5W
3120	4822 116 52175	100Ω 5% 0.5W
3121	4822 050 11002	1k 1% 0.4W
3122	4822 116 52175	100Ω 5% 0.5W
3200	4822 052 10569	56Ω 5% 0.33W
3201	4822 116 52175	100Ω 5% 0.5W
3202	4822 116 52303	8k2 5% 0.5W
3203	4822 050 23903	39k 1% 0.6W
3204	4822 116 52264	27k 5% 0.5W
3205	4822 116 52289	5k6 5% 0.5W
3206	4822 050 21003	10k 1% 0.6W
3207	4822 050 21003	10k 1% 0.6W
3208	4822 116 83883	470Ω 5% 0.5W
3209	4822 116 52269	3k3 5% 0.5W
3210	4822 116 83883	470Ω 5% 0.5W
3211	4822 116 83883	470Ω 5% 0.5W
3214	4822 052 10101	100Ω 5% 0.33W
3215	4822 052 10479	47Ω 5% 0.33W
3216	4822 050 11002	1k 1% 0.4W
3217	4822 052 10101	100Ω 5% 0.33W
3218	4822 052 10479	47Ω 5% 0.33W
3219	4822 050 11002	1k 1% 0.4W
3221	4822 052 10109	10Ω 5% 0.33W
3222	4822 116 52249	1k8 5% 0.5W

3223	4822 116 52249	1k8 5% 0.5W
3224	4822 116 52249	1k8 5% 0.5W
3227	4822 052 10129	12Ω 5% 0.33W
3228	2322 257 41123	12k 5% 5W
3229	4822 116 52175	100Ω 5% 0.5W
3230	4822 050 11002	1k 1% 0.4W
3231	4822 050 21002	1k 1% 0.6W
3232	4822 050 21503	15k 1% 0.6W
3233	4822 050 11002	1k 1% 0.4W
3234	4822 116 52175	100Ω 5% 0.5W
3235	4822 116 52207	1k2 5% 0.5W
3236	4822 116 52303	8k2 5% 0.5W
3237	4822 050 21604	160k 1% 0.6W
3238	4822 050 22702	2k7 1% 0.6W
3239	4822 101 11186	470Ω 30% 0.1W
3240	4822 116 52226	560Ω 5% 0.5W
3241	4822 116 52226	560Ω 5% 0.5W
3242	4822 050 25603	56k 1% 0.6W
3243	4822 050 25603	56k 1% 0.6W
3244	4822 050 21003	10k 1% 0.6W
3245	4822 116 83882	39k 5% 0.5W
3246	4822 116 83961	6k8 5%
3247	4822 116 52175	100Ω 5% 0.5W
3248	4822 050 21002	1k 1% 0.6W
3249	4822 050 21003	10k 1% 0.6W
3250	4822 050 28204	820k 1% 0.6W
3251	4822 050 26804	680k 1% 0.6W
3252	4822 050 21003	10k 1% 0.6W
3253	4822 116 52244	15k 5% 0.5W
3254	4822 050 21003	10k 1% 0.6W
3255	4822 116 83961	6k8 5%
3256	4822 050 21003	10k 1% 0.6W
3257	4822 116 52213	180Ω 5% 0.5W
3258	4822 053 20565	5M6 5% 0.25W
3259	4822 116 52244	15k 5% 0.5W
3260	4822 050 24708	4Ω7 1% 0.6W
3261	4822 116 52297	68k 5% 0.5W
3262	4822 116 52234	100k 5% 0.5W
3263	4822 050 26808	6Ω8 1% 0.6W
3264	4822 050 11002	1k 1% 0.4W
3265	4822 050 11002	1k 1% 0.4W
3266	4822 050 21003	10k 1% 0.6W
3267	4822 116 52256	2k2 5% 0.5W
3268	4822 050 24708	4Ω7 1% 0.6W
3269	4822 050 24708	4Ω7 1% 0.6W
3274	4822 116 52195	47Ω 5% 0.5W
3275	4822 116 80176	1Ω 5% 0.5W
3277	4822 050 11002	1k 1% 0.4W
3278	4822 050 21003	10k 1% 0.6W
3279	4822 116 52264	27k 5% 0.5W
3280	4822 116 83884	47k 5% 0.5W
3998	4822 050 21003	10k 1% 0.6W

-⌒⌒-

5000	2422 549 44911	Mainsfilter
5101	8228 001 37422	Standby transf. CE165T
5103	4822 157 71466	2.2μH 20%
5104	4822 157 71466	2.2μH 20%
5105	4822 526 10704	Bead 100mHz
5106	4822 526 10704	Bead 100mHz
5201	8222 289 53691	Driver transf. CE136H
5202	8228 001 37502	Transformer CE423D
5204	8228 001 37404	DC-DC convertor transf.
5205	2422 535 94637	4.7μH 20%
5206	4822 157 11411	Bead 100mHz
5207	4822 157 11411	Bead 100mHz
5208	4822 157 63985	33μH 5%
5209	4822 157 11411	Bead 100mHz
5210	4822 157 51462	10μH 10%
5212	4822 157 11411	Bead 100mHz
5213	4822 157 11411	Bead 100mHz
5215	4822 157 11411	Bead 100mHz
5216	4822 157 11411	Bead 100mHz
5217	4822 526 10704	Bead 100mHz
5219	4822 157 11411	Bead 100mHz
5222	4822 157 71453	27μH 10%
5223	4822 157 71453	27μH 10%
5224	4822 157 71453	27μH 10%
5225	4822 157 11411	Bead 100mHz
5226	4822 157 11411	Bead 100mHz
5227	4822 157 11411	Bead 100mHz
5228	4822 157 11411	Bead 100mHz
5229	4822 157 11411	Bead 100mHz
5230	4822 157 11411	Bead 100mHz
5231	4822 157 11411	Bead 100mHz
5232	4822 157 11771	0.09μH 10%
5240	4822 157 11411	Bead 100mHz
5241	4822 526 10704	Bead 100mHz
5242	4822 526 10704	Bead 100mHz
5243	4822 157 11411	Bead 100mHz
5244	4822 157 11411	Bead 100mHz
5271	4822 157 71453	27μH 10%
5272	2422 535 94637	4.7μH 20%
5273	4822 157 71453	27μH 10%
5274	4822 157 11869	33μH 10%
5275	4822 157 11411	Bead 100mHz
5280	2422 549 44872	Mainsfilter

-▶|-

6008	3198 010 10640	Bridge cell GBU4K
6009	4822 130 30621	1N4148
6101	4822 130 83147	DF06M
6104	9336 018 60133	BZT03-C300
6105	9336 018 60133	BZT03-C300
6106	9322 161 77682	SB540L-7024
6108	4822 130 34278	BZX79-B6V8
6200	4822 130 30621	1N4148
6201	4822 130 30621	1N4148
6202	9337 534 30133	BZD23-C15
6203	9337 534 30133	BZD23-C15
6204	4822 130 30621	1N4148
6205	4822 130 30621	1N4148
6206	4822 130 34441	BZX79-B22
6207	4822 130 30621	1N4148
6208	4822 130 30621	1N4148
6209	4822 130 31024	BZX79-B18
6210	4822 130 42488	BYD33D
6211	4822 130 30621	1N4148
6212	4822 130 30621	1N4148
6213	4822 130 31983	BAT85
6214	4822 130 30621	1N4148
6216	4822 130 30621	1N4148
6217	4822 130 30621	1N4148
6218	9322 131 78682	D4SBL20
6219	4822 130 30621	1N4148
6220	4822 130 30621	1N4148
6221	4822 130 34174	BZX79-B4V7
6222	9322 129 53687	G10DCT
6224	9322 131 78682	D4SBL20
6230	4822 130 83801	PBYR745F
6234	4822 130 34197	BZX79-B12
6235	4822 130 30621	1N4148
6237	9322 161 77682	SB540L-7024
6238	4822 130 34278	BZX79-B6V8
6239	4822 130 34197	BZX79-B12
6270	4822 130 30621	1N4148
6271	4822 130 30621	1N4148

-Ⓚ ▭

7000	4822 130 40981	BC337-25
7001	4822 130 40959	BC547B
7103	9322 037 99682	TNY256P
7104	9322 149 04682	TCET1102
7105	4822 209 81397	TL431CLPST
7106	4822 130 11421	BT151X-500R
7200	9322 149 04682	TCET1102
7201	4822 130 40959	BC547B
7202	4822 130 44568	BC557B
7203	4822 130 44568	BC557B
7204	4822 130 44568	BC557B
7205	9322 108 21682	MC34067P
7206	9322 132 14687	STP11NB40FP
7207	9322 132 14687	STP11NB40FP
7211	9322 129 22687	L4977A
7212	4822 209 81397	TL431CLPST
7213	4822 209 12334	L4940V85
7230	4822 130 44568	BC557B
7231	4822 130 40959	BC547B
7232	4822 130 11421	BT151X-500R

Mains Switch Panel [E]

Various

0040	3104 307 97621	Mainsknob FL11
0046	3104 304 23471	Bracket mains unit FL11
0151	4822 256 91766	Led holder
0152	4822 256 91766	Led holder
0170	4822 256 10562	Photo diode holder
0201	2422 025 16268	7P Male
0202	2422 025 16268	2P Male
0241	2422 025 06354	9P Male
0245	4822 267 10748	3P Male
1050	9322 154 48667	IR Receiver TSOP2236
1051	2422 128 02972	Mains switch 2P 8/128A
8202	3104 301 08291	Cable 2P3 560mm black
8241	3104 301 09381	Cable 9P 680mm white

-||-

2051	4822 124 41584	100μF 20% 10V
2070	4822 126 13879	220nF 20% 16V
2071	4822 124 40248	10μF 20% 63V

-▭-

3050	4822 117 13577	330Ω 1% 1.25W
3051	4822 051 30471	470Ω 5% 0.062W
3054	4822 051 20471	470Ω 5% 0.1W
3057	4822 053 21335	3M3 5% 0.5W
3061	4822 051 30332	3k3 5% 0.062W
3063	4822 052 10478	4Ω7 5% 0.33W
3064	4822 052 10478	4Ω7 5% 0.33W
3066	4822 053 21335	3M3 5% 0.5W
3070	4822 051 30334	330k 5% 0.062W
3071	4822 051 30334	330k 5% 0.062W
3072	4822 051 30102	1k 5% 0.062W
3073	4822 051 30103	10k 5% 0.062W
3074	4822 051 30472	4k7 5% 0.062W
3075	4822 051 30472	4k7 5% 0.062W
3076	4822 051 30682	6k8 5% 0.062W
3077	4822 051 30103	10k 5% 0.062W
3078	4822 051 30102	1k 5% 0.062W
3079	4822 051 30332	3k3 5% 0.062W
3082	4822 051 30008	Jumper 0603
3998	4822 116 52206	120Ω 5% 0.5W

-▶|-

6051	4822 209 72895	TLUV5320
6052	9322 150 78676	LED IR TSAL6400
6053	4822 130 10838	UDZ3.3B
6070	4822 130 11595	BPW46

-Ⓚ ▭

7050	4822 130 41246	BC327-25
7070	4822 209 70672	LM358N Selected

Picture Tube Panel [F]

Various

0041	3122 121 24785	SPRING fix IC
0042	3122 121 24785	SPRING fix IC
0043	3122 121 24785	SPRING fix IC
0297	2422 500 80036	CRT socket 9P
0324	4822 267 10972	5P
0334	4822 267 10973	1P
0340	4822 267 10974	9P
0383	4822 267 10967	3P
1382	2422 025 17408	9P male

-||-

2330	2020 552 93645	39pF 5% 50V
2332	5322 126 10223	4.7nF 10% 63V
2336	4822 126 14585	100nF 10% 50V
2337	5322 121 42489	33nF 5% 250V
2340	2020 552 93645	39pF 5% 50V
2342	5322 126 10223	4.7nF 10% 63V
2346	4822 126 14585	100nF 10% 50V
2347	5322 121 42489	33nF 5% 250V
2350	2020 552 93645	39pF 5% 50V
2352	5322 126 10223	4.7nF 10% 63V
2356	4822 126 14585	100nF 10% 50V
2357	5322 121 42489	33nF 5% 250V
2360	5322 122 31863	330pF 5% 63V
2370	4822 124 11565	10μF 20% 250V
2372	4822 124 40784	3300μF 20% 16V
2374	5322 122 34098	10nF 10% 63V
2381	4822 126 13599	3.3nF 10% 500V
2382	4822 122 31177	470pF 10% 500V
2383	4822 124 41584	100μF 20% 10V
2384	4822 124 41584	100μF 20% 10V
2393	5322 122 32654	22nF 10% 63V
2397	4822 121 70594	1nF 5% 2kV
2398	4822 121 70383	6.8nF 5% 2kV
2410	2020 552 93683	1.2nF 10% 50V
2411	4822 124 40764	22μF 100V
2420	4822 126 14238	2.2nF 50V
2421	4822 126 14494	22nF 10% 25V
2422	2238 586 15628	2.7nF 10% 50V
2423	2238 586 15628	2.7nF 10% 50V
2424	4822 126 14494	22nF 10% 25V
2425	4822 126 14494	22nF 10% 25V
2426	4822 126 14494	22nF 10% 25V

2427	2020 552 93683	1.2nF 10% 50V
2428	4822 126 14238	2.2nF 50V
2429	4822 126 14494	22nF 10% 25V
2440	4822 126 14043	1µF 20% 16V
2475	4822 122 33761	22pF 5% 50V
2484	4822 122 33761	22pF 5% 50V
2485	4822 122 33761	22pF 5% 50V
2489	4822 122 33761	22pF 5% 50V

-▭-

3325	4822 051 20332	3k3 5% 0.1W
3329	4822 116 52283	4k7 5% 0.5W
3330	4822 051 30181	180Ω 5% 0.062W
3331	4822 117 12968	820Ω 5% 0.62W
3333	2120 105 93438	33k 2W
3334	4822 116 83881	390Ω 5% 0.5W
3335	4822 116 83872	220Ω 5% 0.5W
3336	4822 117 11373	100Ω 1%
3339	4822 051 10102	1k 2% 0.25W
3340	4822 051 30181	180Ω 5% 0.062W
3341	4822 117 12968	820Ω 5% 0.62W
3343	2120 105 93438	33k 2W
3344	4822 116 83881	390Ω 5% 0.5W
3345	4822 116 83872	220Ω 5% 0.5W
3346	4822 117 11373	100Ω 1%
3349	4822 051 10102	1k 2% 0.25W
3350	4822 051 30181	180Ω 5% 0.062W
3351	4822 117 12968	820Ω 5% 0.62W
3353	2120 105 93438	33k 2W
3354	4822 116 83881	390Ω 5% 0.5W
3355	4822 116 83872	220Ω 5% 0.5W
3356	4822 117 11373	100Ω 1%
3359	4822 051 10102	1k 2% 0.25W
3360	4822 050 11002	1k 1% 0.4W
3363	4822 051 20008	Jumper 0805
3364	4822 051 20008	Jumper 0805
3365	4822 117 12925	47k 1% 0.063W
3372	4822 052 10108	1Ω 5% 0.33W
3373	4822 052 10151	150Ω 5% 0.33W
3374	4822 052 10151	150Ω 5% 0.33W
3382	4822 116 52191	33Ω 5% 0.5W
3383	4822 117 13016	VDR 1mA/50V MAX 115V
3385	4822 117 13016	VDR 1mA/50V MAX 115V
3386	4822 116 52191	33Ω 5% 0.5W
3396	3198 013 01520	1k5 2% 0.5W
3397	3198 013 01520	1k5 2% 0.5W
3401	4822 051 30101	100Ω 5% 0.062W
3402	4822 051 30101	100Ω 5% 0.062W
3403	4822 051 30101	100Ω 5% 0.062W
3404	4822 116 52238	12k 5% 0.5W
3404	4822 116 52291	56k 5% 0.5W
3410	4822 117 12968	820Ω 5% 0.62W
3411	4822 117 13632	100k 1% 0.62W 0603
3413	4822 117 12968	820Ω 5% 0.62W
3414	4822 117 12077	2k7 5% 5W
3416	4822 117 13632	100k 1% 0.62W
3421	4822 051 30273	27k 5% 0.062W
3422	4822 116 52226	560Ω 5% 0.5W
3423	4822 051 30471	470Ω 5% 0.062W
3424	4822 117 10361	680Ω 1% 0.1W
3425	4822 051 10102	1k 2% 0.25W
3426	4822 051 30332	3k3 5% 0.062W
3427	4822 051 30561	560Ω 5% 0.062W
3431	4822 051 30273	27k 5% 0.062W
3433	4822 051 30471	470Ω 5% 0.062W
3434	4822 117 10361	680Ω 1% 0.1W
3435	4822 051 30102	1k 5% 0.062W
3436	4822 051 30332	3k3 5% 0.062W
3437	4822 051 30561	560Ω 5% 0.062W
3441	4822 051 30273	27k 5% 0.062W
3443	4822 051 30471	470Ω 5% 0.062W
3444	4822 117 10361	680Ω 1% 0.1W
3445	4822 051 10102	1k 2% 0.25W
3446	4822 051 30332	3k3 5% 0.062W
3447	4822 051 30561	560Ω 5% 0.062W
3448	4822 117 12968	820Ω 5% 0.62W
3450	4822 051 30102	1k 5% 0.062W
3451	4822 051 30689	68Ω 5% 0.063W
3452	4822 117 12925	47k 1% 0.063W
3453	4822 051 30392	3k9 5% 0.063W
3454	4822 117 12968	820Ω 5% 0.62W
3455	4822 051 30472	4k7 5% 0.062W
3456	4822 051 30181	180Ω 5% 0.062W
3460	3198 021 32250	2M2 5%
3462	3198 021 32250	2M2 5%
3463	3198 021 32250	2M2 5%
3468	3198 021 32250	2M2 5%
3470	4822 116 81154	2Ω2 5% 0.5W
3472	4822 116 81154	2Ω2 5% 0.5W
3473	4822 116 81154	2Ω2 5% 0.5W
3474	4822 051 30102	1k 5% 0.062W
3475	4822 117 12925	47k 1% 0.063W
3476	4822 051 30103	10k 5% 0.062W
3477	4822 051 30109	10Ω 5% 0.062W
3478	4822 116 81154	2Ω2 5% 0.5W
3483	4822 051 30102	1k 5% 0.062W
3484	4822 117 12925	47k 1% 0.063W
3485	4822 117 12925	47k 1% 0.063W
3487	4822 051 30103	10k 5% 0.062W
3488	4822 051 30109	10Ω 5% 0.062W
3489	4822 117 12925	47k 1% 0.063W
3492	4822 051 30101	100Ω 5% 0.062W
3493	4822 116 52191	33Ω 5% 0.5W
3494	4822 051 30101	100Ω 5% 0.062W
3495	4822 051 20479	47Ω 5% 0.1W
3999	4822 117 10353	150Ω 1% 0.1W
3999	4822 117 11503	220Ω 1% 0.1W
3999	4822 117 13577	330Ω 1% 1.25W
4xxx	4822 051 10008	Jumper 1206
4xxx	4822 051 20008	Jumper 0805

~

5372	4822 157 51216	5.6µH 10%
5373	4822 157 51216	5.6µH 10%
5400	4822 157 11778	5.6µH 10%
5401	2722 122 00334	Del line 90nS SDL-5127
5402	2722 122 00334	Del line 90nS SDL-5127
5403	2722 122 00334	Del line 90nS SDL-5127

▶|

6325	4822 130 10838	UDZ3.3B
6335	9340 553 52115	BAS321
6336	9340 553 52115	BAS321
6345	9340 553 52115	BAS321
6346	9340 553 52115	BAS321
6355	9340 553 52115	BAS321
6356	9340 553 52115	BAS321
6373	4822 130 42488	BYD33D
6374	4822 130 82512	BYV29F-400
6412	4822 130 11397	BAS316
6413	4822 130 11397	BAS316
6414	4822 130 11397	BAS316
6415	4822 130 11397	BAS316

⊗ ▭

7330	9352 626 34112	TDA6120Q/N2
7340	9352 626 34112	TDA6120Q/N2
7350	9352 626 34112	TDA6120Q/N2
7412	4822 130 40824	BD140
7413	4822 130 40823	BD139
7414	4822 130 40824	BD140
7415	4822 130 40823	BD139
7416	4822 130 60511	BC847B
7417	4822 130 60373	BC856B
7418	4822 130 60511	BC847B
7419	4822 130 60373	BC856B
7420	4822 130 60511	BC847B
7421	4822 130 60373	BC856B
7422	5322 130 42718	BFS20
7423	4822 130 60511	BC847B
7424	5322 130 42718	BFS20
7425	5322 130 42718	BFS20
7426	4822 130 60373	BC856B
7427	4822 130 60511	BC847B
7428	4822 130 60373	BC856B
7431	4822 130 60383	BF824

DC-shift Panel [G]

Various

0393	2422 025 16218	5P male
0398	4822 267 11043	3P male

⊣⊢

2030	4822 122 31177	470pF 10% 500V
2031	4822 124 40207	100µF 20% 25V
2032	4822 124 40207	100µF 20% 25V
2033	4822 122 31177	470pF 10% 500V
2034	4822 121 42408	220nF 10% 50V

-▭-

3030	4822 117 12159	150Ω 5% 2W
3030	4822 053 11159	15Ω 5% 2W
3031	4822 052 10108	1Ω 5% 0.33W
3032	4822 052 10108	1Ω 5% 0.33W
3033	4822 053 11159	15Ω 5% 2W
3034	4822 116 83872	220Ω 5% 0.33W
3040	4822 053 11101	100Ω 5% 2W

~

5030	4822 157 70006	DC-shift coil

▶|

6030	4822 130 42488	BYD33D
6033	4822 130 42488	BYD33D

⊗ ▭

7030	4822 130 41109	BD135-16
7031	4822 130 41194	BD136-16

DAF Panel [I]

Various

0001	3104 304 20301	DAF bracket
0317	4822 265 20723	3P male
0391	4822 267 10973	1P
0396	2422 025 16374	2P male
0397	4822 267 10774	2P male red
0398	4822 267 11043	3P male
1010	2322 460 91631	DAF potmeter 36" RF
1016	2322 460 91641	DAF potmeter 32" RF
8300	4822 320 20216	Focus cable 364 mm
8301	4822 320 20216	Focus cable 364 mm
8396	3104 311 01951	CableH 2P3/560mm/2P4

⊣⊢

2800	2222 375 90188	390pF 5% 2kV
2800	2222 375 90498	470pF 5% 2kV
2890	2222 375 90188	390pF 5% 2kV
2890	2222 375 90276	220pF 5% 2kV

-▭-

3050	4822 101 11191	10k 30% LIN 0.1W
3898	4822 116 21211	VDR 420V
3899	4822 116 21211	VDR 420V
3998	4822 116 52219	330Ω 5% 0.5W

~

5800	4822 148 81242	Coil CU20C2

Small Signal Panel [K]

Various

0002	2422 486 80873	IC socket 42P DIL
0008	2422 486 80928	IC socket 8P DIL
0031	3104 304 22851	SSP bracket
0032	3104 304 19646	Module support bracket
0310	4822 267 10964	9P male red
0311	4822 267 10978	7P male black
0315	4822 267 10979	9P male black
0328	4822 267 10981	11P male black
0333	4822 267 10962	11P
0340	4822 267 10974	9P male
0341	4822 267 10974	9P male
0344	4822 267 10963	3P male
0348	4822 267 11043	3P
0351	4822 267 10962	11P male
0352	4822 267 10962	11P male
0353	4822 267 10974	9P male
0356	4822 267 10963	3P male
0360	4822 267 10967	3P male
0361	4822 267 10974	9P male
0362	4822 267 10974	9P male
0373	4822 267 10978	7P male
0375	4822 267 10676	1P
0381	4822 267 10963	3P male
1001	4822 242 10972	Crystal 6MHz
1101	3139 147 14591	Splitter PS1311/I
1102	3139 147 18831	Tuner UV1316/A I X-3
1102	3139 147 18841	Tuner UV1316/A P X-3
1105	4822 242 10688	Filter OFWK9456M
1107	4822 242 72211	Filter 5.5MHz
1109	4822 242 81436	Filter OFWK3953M
1198	3104 301 08351	Cable phono-phono 120mm

1201	4822 267 10771	Socket 2 x scart
1202	4822 267 10771	Socket 2 x scart
1305	5322 242 73686	Crystal 12 MHz
1525	4822 242 10695	Crystal 4.433 619 MHz
1528	4822 242 10697	Crystal 3.579 545 MHz
1751	4822 242 10434	Crystal 18.432 MHz
8310	3104 301 08303	Cable 9P 680m red
8340	4822 320 12508	Cable 9P 400mm White
8360	3119 107 17071	Cable 3P 220mm Black
8382	3104 311 00340	Service cable 9P SSP-PTP

⊣⊢

2001	4822 126 14585	100nF 10% 50V
2002	4822 126 14305	100nF 10% 16V 0603
2003	4822 126 14305	100nF 10% 16V 0603
2005	4822 126 14305	100nF 10% 16V 0603
2006	4822 126 14305	100nF 10% 16V 0603
2007	4822 126 14305	100nF 10% 16V 0603
2008	4822 126 14305	100nF 10% 16V 0603
2009	4822 126 14305	100nF 10% 16V 0603
2010	4822 126 14305	100nF 10% 16V 0603
2011	4822 126 14305	100nF 10% 16V 0603
2012	4822 126 14305	100nF 10% 16V 0603
2013	4822 126 14076	220nF 20-80% 25V
2014	4822 126 11669	27pF
2015	4822 126 14585	100nF 10% 50V
2016	5322 122 32659	33pF 5% 50V
2021	4822 126 14585	100nF 10% 50V
2022	4822 126 14076	220nF 20-80% 25V
2023	4822 126 14305	100nF 10% 16V 0603
2024	5322 126 11578	1nF 10% 50V 0603
2025	4822 126 14305	100nF 10% 16V 0603
2026	4822 126 14305	100nF 10% 16V 0603
2027	4822 126 14305	100nF 10% 16V 0603
2028	4822 126 14305	100nF 10% 16V 0603
2029	4822 124 40433	47µF 20% 25V
2030	4822 124 40433	47µF 20% 25V
2031	4822 126 14305	100nF 10% 16V 0603
2032	4822 126 14305	100nF 10% 16V 0603
2035	4822 126 14585	100nF 10% 50V
2037	4822 126 14585	100nF 10% 50V
2038	4822 126 14585	100nF 10% 50V
2039	4822 126 13883	220pF 5% 50V
2040	4822 122 33177	10nF 20% 50V
2042	4822 122 33777	47pF 5% 63V
2043	4822 122 33777	47pF 5% 63V
2044	4822 122 33777	47pF 5% 63V
2045	4822 124 41584	100µF 20% 10V
2046	4822 126 14585	100nF 10% 50V
2049	4822 126 14226	82pF 5% 50V 0603
2050	4822 126 14226	82pF 5% 50V 0603
2051	4822 126 14226	82pF 5% 50V 0603
2052	4822 126 14226	82pF 5% 50V 0603
2053	4822 126 14226	82pF 5% 50V 0603
2054	4822 126 14226	82pF 5% 50V 0603
2101	4822 124 40196	220µF 20% 16V
2102	4822 126 13473	220nF 80-20% 50V
2104	4822 122 33177	10nF 20% 50V
2105	4822 122 33177	10nF 20% 50V
2106	4822 122 33575	220pF 5% 63V
2107	4822 126 13694	68pF 1% 63V
2108	5322 122 31873	2.7pF 5% 100V
2109	4822 124 22652	2.2µF 20% 50V
2110	4822 124 21913	1µF 20% 63V
2111	4822 126 14585	100nF 10% 50V
2112	4822 122 33891	3.3nF 10% 63V
2116	4822 124 81044	470µF 20% 6.3V
2117	4822 126 13482	470nF 80/20% 16V
2118	5322 122 32967	5.6pF 10% 63V
2119	5322 122 31863	330pF 5% 63V
2120	4822 126 14076	220nF 20-80% 25V
2121	4822 124 40248	10µF 20% 63V
2125	4822 122 33177	10nF 20% 50V
2126	4822 124 40433	47µF 20% 25V
2127	4822 126 14076	220nF 20-80% 25V
2202	5322 122 31863	330pF 5% 63V
2203	5322 122 31863	330pF 5% 63V
2204	4822 126 14305	100nF 10% 16V 0603
2205	4822 124 40248	10µF 20% 63V
2206	5322 122 32531	100pF 5% 50V
2209	5322 122 31863	330pF 5% 63V
2210	5322 122 32531	100pF 5% 50V
2212	4822 124 40248	10µF 20% 63V
2213	4822 126 14305	100nF 10% 16V 0603
2215	5322 122 31863	330pF 5% 63V
2216	5322 122 31863	330pF 5% 63V
2217	5322 122 32531	100pF 5% 50V
2218	5322 122 31647	1nF 10% 63V
2219	5322 122 31863	330pF 5% 63V
2220	5322 122 32531	100pF 5% 50V
2221	4822 126 14076	220nF 20-80% 25V
2222	4822 124 81286	47µF 20% 16V
2224	5322 122 32531	100pF 5% 50V
2226	5322 122 32531	100pF 5% 50V
2240	5322 122 32531	100pF 5% 50V
2241	5322 122 32531	100pF 5% 50V
2242	4822 124 23002	10µF 16V
2243	4822 126 14076	220nF 20-80% 25V
2244	4822 126 14076	220nF 20-80% 25V
2245	4822 126 14076	220nF 20-80% 25V
2246	4822 126 14076	220nF 20-80% 25V
2247	4822 126 14076	220nF 20-80% 25V
2248	4822 126 14076	220nF 20-80% 25V
2249	4822 126 14076	220nF 20-80% 25V
2250	4822 126 14076	220nF 20-80% 25V
2251	4822 124 80151	47µF 16V
2258	4822 126 14076	220nF 20-80% 25V
2300	4822 124 40196	220µF 20% 16V
2301	4822 126 14585	100nF 10% 50V
2302	4822 126 14585	100nF 10% 50V
2303	4822 124 22652	2.2µF 20% 50V
2304	4822 126 14305	100nF 10% 16V 0603
2307	4822 122 33741	10pF 10% 50V
2308	4822 122 33741	10pF 10% 50V
2311	4822 124 40196	220µF 20% 16V
2312	4822 126 14305	100nF 10% 16V 0603
2313	4822 126 13694	68pF 1% 63V
2315	5322 122 34098	10nF 10% 63V
2321	4822 126 13881	470pF 5% 50V
2322	4822 126 13881	470pF 5% 50V
2323	4822 121 70661	100nF 5% 63V
2324	2222 396 05333	33nF 5% 50V
2331	5322 126 11583	10nF 10% 50V 0603
2340	4822 126 13881	470pF 5% 50V
2343	5322 122 32448	10pF 5% 63V
2344	4822 126 14305	100nF 10% 16V 0603
2351	2020 552 96326	220nF 10% 16V
2403	4822 126 14585	100nF 10% 50V
2404	4822 126 14585	100nF 10% 50V
2405	4822 126 14585	100nF 10% 50V
2406	4822 126 14305	100nF 10% 16V 0603
2407	4822 126 14305	100nF 10% 16V 0603
2408	4822 126 14305	100nF 10% 16V 0603
2422	4822 124 22652	2.2µF 20% 50V
2423	4822 124 40769	4.7µF 20% 100V
2425	4822 122 33761	22pF 5% 50V
2427	5322 126 10511	1nF 5% 50V
2436	4822 124 80151	47µF 16V
2501	4822 126 14305	100nF 10% 16V 0603
2502	4822 126 14305	100nF 10% 16V 0603
2503	4822 126 14305	100nF 10% 16V 0603
2504	4822 126 14305	100nF 10% 16V 0603
2505	4822 126 14305	100nF 10% 16V 0603
2506	4822 126 14305	100nF 10% 16V 0603
2507	4822 126 14305	100nF 10% 16V 0603
2508	4822 126 14305	100nF 10% 16V 0603
2509	4822 126 14305	100nF 10% 16V 0603
2510	4822 126 14305	100nF 10% 16V 0603
2511	4822 126 14305	100nF 10% 16V 0603
2512	4822 126 14305	100nF 10% 16V 0603
2520	4822 126 14305	100nF 10% 16V 0603
2521	4822 126 14305	100nF 10% 16V 0603
2522	5322 126 11579	3.3nF 10% 63V
2525	4822 126 14507	18pF 5% 50V 0603
2528	4822 122 33752	15pF 5% 50V
2532	4822 126 14043	1µF 20% 16V
2534	5322 126 10223	4.7nF 10% 63V
2535	4822 126 14491	2.2µF 10V
2536	4822 126 14585	100nF 10% 50V
2537	4822 126 14585	100nF 10% 50V
2538	4822 124 40433	47µF 20% 25V
2539	4822 126 14305	100nF 10% 16V 0603
2540	4822 124 40433	47µF 20% 25V
2541	5322 122 32654	22nF 10% 63V
2545	4822 126 14305	100nF 10% 16V 0603
2550	4822 126 14305	100nF 10% 16V 0603
2553	4822 126 14585	100nF 10% 50V
2554	4822 126 14585	100nF 10% 50V
2555	4822 126 14305	100nF 10% 16V 0603
2556	4822 126 14305	100nF 10% 16V 0603
2557	4822 126 14305	100nF 10% 16V 0603
2558	4822 126 14305	100nF 10% 16V 0603
2559	4822 124 40207	100µF 20% 25V
2560	4822 126 14305	100nF 10% 16V 0603
2561	4822 124 81286	47µF 20% 16V
2562	4822 126 14305	100nF 10% 16V 0603
2564	4822 122 33177	10nF 20% 50V
2567	5322 126 10733	680pF 5% 50V
2568	4822 122 31765	100pF 2% 63V
2569	4822 122 33177	10nF 20% 50V
2570	4822 122 31765	100pF 2% 63V
2751	4822 126 14305	100nF 10% 16V 0603
2752	4822 126 13692	47pF 1% 63V
2753	4822 122 32927	220nF 20% 50V
2754	5322 122 32268	470pF 5% 63V
2755	5322 122 32268	470pF 5% 63V
2756	5322 122 32268	470pF 5% 63V
2757	5322 122 32268	470pF 5% 63V
2758	5322 122 32268	470pF 5% 63V
2759	5322 122 32268	470pF 5% 63V
2760	5322 122 32268	470pF 5% 63V
2761	4822 122 32927	220nF 20% 50V
2762	4822 122 32927	220nF 20% 50V
2763	5322 122 32268	470pF 5% 63V
2764	5322 122 32268	470pF 5% 63V
2765	4822 124 12095	100µF 20% 16V
2766	4822 124 12095	100µF 20% 16V
2767	5322 122 32286	3.3pF 5% 50V
2768	5322 122 32286	3.3pF 5% 50V
2773	5322 122 31647	1nF 10% 63V
2774	5322 122 31647	1nF 10% 63V
2777	4822 124 23002	10µF 16V
2778	4822 124 23002	10µF 16V
2779	4822 126 14585	100nF 10% 50V
2780	4822 124 23002	10µF 16V
2781	4822 126 14585	100nF 10% 50V
2782	4822 124 23002	10µF 16V
2783	4822 126 13482	470nF 80/20% 16V
2784	4822 126 13482	470nF 80/20% 16V
2785	5322 122 31647	1nF 10% 63V
2786	5322 122 31647	1nF 10% 63V
2787	5322 126 10223	4.7nF 10% 63V
2788	5322 126 10223	4.7nF 10% 63V
2790	4822 122 33761	22pF 5% 50V
2791	4822 122 33761	22pF 5% 50V
2792	5322 126 11583	10nF 10% 50V 0603
2793	4822 122 33177	10nF 20% 50V
2801	4822 122 33761	22pF 5% 50V
2802	4822 124 12398	4.7µF 20% 25V
2803	4822 124 12398	4.7µF 20% 25V
2804	4822 122 32927	220nF 20% 50V
2805	4822 122 32927	220nF 20% 50V
2808	4822 124 12095	100µF 20% 16V
2809	5322 126 10511	1nF 5% 50V
2810	5322 126 10511	1nF 5% 50V
2811	5322 126 10511	1nF 5% 50V
2842	4822 124 23002	10µF 16V
2843	4822 126 14491	2.2µF 10V
2846	4822 124 23002	10µF 16V
2847	4822 124 23002	10µF 16V
2848	4822 124 23002	10µF 16V
2849	4822 124 23002	10µF 16V
2852	4822 122 32927	220nF 20% 50V
2853	4822 122 32927	220nF 20% 50V
2854	4822 122 32927	220nF 20% 50V
2855	4822 122 32927	220nF 20% 50V
2856	4822 122 32927	220nF 20% 50V
2857	4822 122 32927	220nF 20% 50V
2858	4822 122 32927	220nF 20% 50V
2859	4822 122 32927	220nF 20% 50V
2860	4822 122 32927	220nF 20% 50V
2861	4822 122 32927	220nF 20% 50V
2864	4822 124 81151	22µF 50V
2869	4822 124 40196	220µF 20% 16V
2870	4822 122 32927	220nF 20% 50V
2871	4822 122 32927	220nF 20% 50V
2872	4822 124 40207	100µF 20% 25V
2873	5322 126 10511	1nF 5% 50V
2890	4822 122 33177	10nF 20% 50V
2891	4822 126 14585	100nF 10% 50V
2897	4822 126 14305	100nF 10% 16V 0603

─▭─

3001	2322 704 66201	620Ω 1% 0.062W
3003	3198 031 14710	4X470Ω 5% 0.63W network
3004	3198 031 14710	4X470Ω 5% 0.63W network
3005	3198 031 14710	4X470Ω 5% 0.63W network
3006	4822 051 30103	10k 5% 0.062W
3007	4822 051 30103	10k 5% 0.062W
3009	3198 031 14710	4X470Ω 5% 0.63W network
3010	4822 051 30103	10k 5% 0.062W
3011	4822 051 30472	4k7 5% 0.062W
3023	3198 031 14710	4X470Ω 5% 0.63W network
3024	4822 051 30471	470Ω 5% 0.062W
3027	3198 031 14710	4X470Ω 5% 0.63W network
3028	3198 031 14710	4X470Ω 5% 0.63W network
3029	4822 051 30471	470Ω 5% 0.062W
3030	3198 031 11010	4X100Ω 5% 0.63W network
3031	4822 117 13577	330Ω 1% 1.25W
3032	4822 051 30471	470Ω 5% 0.062W
3033	4822 117 13523	220Ω 5% RESN 0.63W
3034	4822 051 30103	10k 5% 0.062W
3035	4822 051 30103	10k 5% 0.062W
3036	4822 117 13524	2.2k 5% 0.63W
3039	4822 051 30333	33k 5% 0.062W
3041	4822 117 10833	10k 1% 0.1W
3042	4822 051 20474	470k 5% 0.1W
3043	4822 051 30472	4k7 5% 0.062W

3045	4822 051 20273	27k 5% 0.1W
3047	4822 117 13525	24k 1% 0.62W 0603
3048	4822 117 13526	150Ω 5% 0.63W
3059	4822 051 30331	330Ω 5% 0.062W
3062	4822 117 12925	47k 1% 0.063W 0603
3063	4822 051 30472	4k7 5% 0.062W
3066	4822 117 10833	10k 1% 0.1W
3067	4822 051 30472	4k7 5% 0.062W
3068	4822 051 30103	10k 5% 0.062W
3069	4822 051 30689	68Ω 5% 0.063W 0603
3070	4822 051 30103	10k 5% 0.062W
3071	4822 051 30472	4k7 5% 0.062W
3072	4822 117 10834	47k 1% 0.1W
3073	4822 051 20472	4k7 5% 0.1W
3075	4822 051 30472	4k7 5% 0.062W
3076	4822 051 30472	4k7 5% 0.062W
3080	3198 031 11010	4X100Ω 5% 0.63W network
3086	4822 051 30101	100Ω 5% 0.062W
3090	3198 031 11010	4X100Ω 5% 0.63W network
3091	3198 031 11010	4X100Ω 5% 0.63W network
3092	3198 031 11010	4X100Ω 5% 0.63W network
3093	3198 031 11010	4X100Ω 5% 0.63W network
3094	3198 031 11010	4X100Ω 5% 0.63W network
3095	3198 031 11010	4X100Ω 5% 0.63W network
3096	3198 031 11010	4X100Ω 5% 0.63W network
3097	3198 031 11010	4X100Ω 5% 0.63W network
3098	3198 031 11010	4X100Ω 5% 0.63W network
3099	3198 031 11010	4X100Ω 5% 0.63W network
3102	4822 117 10833	10k 1% 0.1W
3103	4822 051 20008	Jumper 0805
3104	4822 051 20008	Jumper 0805
3106	4822 051 20479	47Ω 5% 0.1W
3110	4822 117 11449	2k2 5% 0.1W 0805
3111	4822 117 11449	2k2 5% 0.1W 0805
3112	4822 051 20472	4k7 5% 0.1W
3114	4822 051 20472	4k7 5% 0.1W
3118	4822 051 20391	390Ω 5% 0.1W
3119	4822 051 20479	47Ω 5% 0.1W
3124	4822 051 30101	100Ω 5% 0.062W
3133	4822 117 12955	2k7 1% 0.1W 0805
3135	4822 051 20472	4k7 5% 0.1W
3136	4822 117 11503	220Ω 1% 0.1W
3137	4822 051 10102	1k 2% 0.25W
3138	4822 117 11448	180Ω 1% 0.1W
3139	4822 117 11139	1k5 1% 0.1W
3140	4822 116 83933	15k 1% 0.1W
3141	4822 051 30333	33k 5% 0.062W
3142	4822 051 30102	1k 5% 0.062W
3143	4822 051 30102	1k 5% 0.062W
3145	4822 051 30101	100Ω 5% 0.062W
3146	4822 051 20223	22k 5% 0.1W
3147	4822 052 10109	10Ω 5% 0.33W
3152	4822 051 20471	470Ω 5% 0.1W
3153	4822 051 10102	1k 2% 0.25W
3154	4822 117 11503	220Ω 1% 0.1W
3155	4822 117 11503	220Ω 1% 0.1W
3200	4822 117 10353	150Ω 1% 0.1W
3201	4822 117 10353	150Ω 1% 0.1W
3202	4822 117 10353	150Ω 1% 0.1W
3203	4822 117 10353	150Ω 1% 0.1W
3204	4822 052 10688	6Ω8 5% 0.33W
3205	4822 051 20471	470Ω 5% 0.1W
3206	4822 117 12521	68Ω 1% 0.1W
3207	4822 051 20561	560Ω 5% 0.1W
3208	4822 051 20399	39Ω 5% 0.1W
3209	4822 117 11927	75Ω 1% 0.1W
3210	4822 117 11927	75Ω 1% 0.1W
3211	4822 117 11927	75Ω 1% 0.1W
3212	4822 051 20399	39Ω 5% 0.1W
3213	4822 117 11927	75Ω 1% 0.1W
3215	4822 117 11927	75Ω 1% 0.1W
3216	4822 051 20822	8k2 5% 0.1W
3218	4822 051 20392	3k9 5% 0.1W
3219	4822 051 10102	1k 2% 0.25W
3220	4822 051 10102	1k 2% 0.25W
3221	4822 117 10353	150Ω 1% 0.1W
3222	4822 117 10353	150Ω 1% 0.1W
3223	4822 117 10353	150Ω 1% 0.1W
3224	4822 117 10353	150Ω 1% 0.1W
3225	4822 052 10688	6Ω8 5% 0.33W
3227	4822 051 20399	39Ω 5% 0.1W
3228	4822 051 30101	100Ω 5% 0.062W
3229	4822 051 30103	10k 5% 0.062W
3230	4822 051 20561	560Ω 5% 0.1W
3231	4822 051 20399	39Ω 5% 0.1W
3232	4822 117 12521	68Ω 1% 0.1W
3235	4822 117 10353	150Ω 1% 0.1W
3236	4822 117 11927	75Ω 1% 0.1W
3240	4822 117 11927	75Ω 1% 0.1W
3241	4822 117 10353	150Ω 1% 0.1W
3242	4822 051 20822	8k2 5% 0.1W
3243	4822 117 10353	150Ω 1% 0.1W
3244	4822 051 10102	1k 2% 0.25W
3245	4822 051 20392	3k9 5% 0.1W
3246	4822 051 10102	1k 2% 0.25W
3248	4822 117 13577	330Ω 1% 1.25W
3249	4822 117 12955	2k7 1% 0.1W 0805
3250	4822 117 11139	1k5 1% 0.1W
3252	4822 051 20339	33Ω 5% 0.1W
3253	4822 051 20391	390Ω 5% 0.1W
3254	4822 051 10102	1k 2% 0.25W
3255	4822 051 10102	1k 2% 0.25W
3256	4822 117 11927	75Ω 1% 0.1W
3259	4822 051 30273	27k 5% 0.062W
3262	4822 117 12925	47k 1% 0.063W 0603
3263	4822 051 30221	220Ω 5% 0.062W
3264	4822 051 20822	8k2 5% 0.1W
3265	4822 117 12955	2k7 1% 0.1W 0805
3266	4822 117 10833	10k 1% 0.1W
3269	4822 051 30561	560Ω 5% 0.062W
3270	4822 051 10102	1k 2% 0.25W
3271	4822 051 10102	1k 2% 0.25W
3273	4822 051 20822	8k2 5% 0.1W
3274	4822 117 12955	2k7 1% 0.1W 0805
3275	4822 051 30339	33Ω 5% 0.062W
3276	4822 051 30391	390Ω 5% 0.062W
3277	4822 051 30222	2k2 5% 0.062W
3278	4822 051 30331	330Ω 5% 0.062W
3279	4822 051 30151	150Ω 5% 0.062W
3281	4822 117 12903	1k8 1% 0.063W 0603
3282	4822 117 13632	100k 1% 0.62W 0603
3283	4822 051 30683	68k 5% 0.062W
3284	4822 117 13632	100k 1% 0.62W 0603
3285	4822 051 30683	68k 5% 0.062W
3286	4822 117 13632	100k 1% 0.62W 0603
3287	4822 051 30683	68k 5% 0.062W
3288	4822 051 30101	100Ω 5% 0.062W
3289	4822 051 30101	100Ω 5% 0.062W
3290	4822 052 10478	4Ω7 5% 0.33W
3291	4822 051 30561	560Ω 5% 0.062W
3292	4822 051 30103	10k 5% 0.062W
3293	4822 051 30471	470Ω 5% 0.062W
3294	4822 051 30103	10k 5% 0.062W
3295	4822 051 30471	470Ω 5% 0.062W
3296	4822 051 30103	10k 5% 0.062W
3297	4822 051 30103	10k 5% 0.062W
3298	4822 117 13632	100k 1% 0.62W 0603
3299	4822 051 30683	68k 5% 0.062W
3300	4822 052 10688	6Ω8 5% 0.33W
3302	4822 051 30101	100Ω 5% 0.062W
3303	4822 051 30101	100Ω 5% 0.062W
3304	4822 051 30101	100Ω 5% 0.062W
3307	4822 051 30102	1k 5% 0.062W
3308	4822 051 30102	1k 5% 0.062W
3309	4822 051 30333	33k 5% 0.062W
3310	4822 051 20332	3k3 5% 0.1W
3311	4822 051 30102	1k 5% 0.062W
3312	4822 117 13632	100k 1% 0.62W 0603
3315	4822 051 20182	1k8 5% 0.1W
3316	4822 051 10102	1k 2% 0.25W
3317	4822 051 30102	1k 5% 0.062W
3318	4822 051 30102	1k 5% 0.062W
3320	4822 051 30102	1k 5% 0.062W
3321	4822 051 30102	1k 5% 0.062W
3322	4822 051 30102	1k 5% 0.062W
3323	4822 051 20393	39k 5% 0.1W
3325	4822 051 30102	1k 5% 0.062W
3326	4822 051 30221	220Ω 5% 0.062W
3330	4822 051 30684	680k 5% 0.062W
3331	4822 117 12925	47k 1% 0.063W 0603
3332	4822 051 30183	18k 5% 0.062W
3340	4822 051 30123	12k 5% 0.062W
3341	4822 051 10102	1k 2% 0.25W
3342	4822 051 30103	10k 5% 0.062W
3343	4822 117 10837	100k 1% 0.1W
3344	4822 051 30103	10k 5% 0.062W
3350	4822 051 30474	470k 5% 0.062W
3351	4822 117 12891	220k 1%
3352	4822 051 30332	3k3 5% 0.062W
3353	4822 117 12903	1k8 1% 0.063W 0603
3369	4822 051 30103	10k 5% 0.062W
3370	4822 051 30103	10k 5% 0.062W
3400	4822 117 11454	820Ω 1% 0.1W
3401	4822 117 11454	820Ω 1% 0.1W
3402	4822 117 11454	820Ω 1% 0.1W
3404	4822 051 20479	47Ω 5% 0.1W
3405	4822 051 20479	47Ω 5% 0.1W
3406	4822 051 20479	47Ω 5% 0.1W
3407	4822 117 10361	680Ω 1% 0.1W
3408	4822 117 10361	680Ω 1% 0.1W
3409	4822 117 10361	680Ω 1% 0.1W
3420	4822 117 12925	47k 1% 0.063W 0603
3422	4822 117 11449	2k2 5% 0.1W 0805
3423	4822 051 20008	Jumper 0805
3426	4822 051 30333	33k 5% 0.062W
3427	4822 051 30154	150k 5% 0.062W
3428	4822 051 30222	2k2 5% 0.062W
3429	4822 051 30181	180Ω 5% 0.062W
3439	4822 117 10833	10k 1% 0.1W
3440	4822 051 20393	39k 5% 0.1W
3441	4822 117 10833	10k 1% 0.1W
3454	4822 051 20008	Jumper 0805
3460	4822 051 30103	10k 5% 0.062W
3461	4822 051 30223	22k 5% 0.062W
3521	4822 117 13632	100k 1% 0.62W 0603
3530	4822 051 30101	100Ω 5% 0.062W
3531	4822 051 30101	100Ω 5% 0.062W
3532	4822 116 83933	15k 1% 0.1W
3538	4822 052 10228	2Ω2 5% 0.33W
3545	4822 051 30471	470Ω 5% 0.062W
3546	4822 051 30471	470Ω 5% 0.062W
3551	4822 051 30271	270Ω 5% 0.062W
3554	4822 051 10102	1k 2% 0.25W
3556	4822 117 10833	10k 1% 0.1W
3557	4822 051 30479	47Ω 5% 0.062W
3558	4822 051 20105	1M 5% 0.1W
3565	4822 051 30101	100Ω 5% 0.062W
3566	4822 051 30101	100Ω 5% 0.062W
3567	4822 117 11373	100Ω 1% 0805
3568	4822 051 20471	470Ω 5% 0.1W
3569	4822 051 30479	47Ω 5% 0.062W
3570	3198 031 11010	4X100Ω 5% 0.63W network
3583	4822 051 30101	100Ω 5% 0.062W
3584	4822 051 30471	470Ω 5% 0.062W
3585	4822 051 30479	47Ω 5% 0.062W
3590	4822 117 11454	820Ω 1% 0.1W
3750	4822 052 10228	2Ω2 5% 0.33W
3751	4822 051 30223	22k 5% 0.062W
3752	4822 051 30223	22k 5% 0.062W
3753	4822 051 30682	6k8 5% 0.062W
3754	4822 051 30682	6k8 5% 0.062W
3755	4822 051 30101	100Ω 5% 0.062W
3756	4822 051 30101	100Ω 5% 0.062W
3762	4822 051 20472	4k7 5% 0.1W
3765	4822 051 30683	68k 5% 0.062W
3766	4822 051 30103	10k 5% 0.062W
3767	4822 051 30683	68k 5% 0.062W
3768	4822 051 30103	10k 5% 0.062W
3769	4822 117 11507	6k8 1% 0.1W
3770	4822 117 11507	6k8 1% 0.1W
3771	4822 116 83933	15k 1% 0.1W
3772	4822 116 83933	15k 1% 0.1W
3773	4822 051 20472	4k7 5% 0.1W
3781	4822 051 30561	560Ω 5% 0.062W
3783	4822 117 11373	100Ω 1% 0805
3784	4822 051 30008	Jumper 0603
3785	4822 051 30008	Jumper 0603
3796	4822 051 20121	120Ω 5% 0.1W
3797	4822 051 20121	120Ω 5% 0.1W
3798	4822 117 10834	47k 1% 0.1W
3799	4822 117 12925	47k 1% 0.063W 0603
3800	4822 051 30682	6k8 5% 0.062W
3801	4822 051 30103	10k 5% 0.062W
3802	4822 117 12891	220k 1%
3828	4822 051 30008	Jumper 0603
3829	4822 051 30008	Jumper 0603
3830	4822 051 20121	120Ω 5% 0.1W
3831	4822 051 20121	120Ω 5% 0.1W
3832	4822 051 10102	1k 2% 0.25W
3833	4822 051 30103	10k 5% 0.062W
3840	4822 051 30103	10k 5% 0.062W
3846	4822 117 12925	47k 1% 0.063W 0603
3847	4822 117 12925	47k 1% 0.063W 0603
3850	4822 051 20332	3k3 5% 0.1W
3851	4822 051 20332	3k3 5% 0.1W
3852	4822 051 30223	22k 5% 0.062W
3853	4822 051 30223	22k 5% 0.062W
3854	4822 117 10833	10k 1% 0.1W
3855	4822 117 10833	10k 1% 0.1W
3856	4822 117 10833	10k 1% 0.1W
3857	4822 117 10833	10k 1% 0.1W
3858	4822 117 10833	10k 1% 0.1W
3859	4822 117 10833	10k 1% 0.1W
3860	4822 117 10833	10k 1% 0.1W
3861	4822 117 10833	10k 1% 0.1W
3862	4822 117 11507	6k8 1% 0.1W
3864	4822 051 20223	22k 5% 0.1W
3865	4822 051 20223	22k 5% 0.1W
3866	4822 117 11373	100Ω 1% 0805
3867	4822 117 11373	100Ω 1% 0805
3877	4822 051 20332	3k3 5% 0.1W
3878	4822 051 20332	3k3 5% 0.1W
3879	4822 051 20332	3k3 5% 0.1W
3880	4822 051 20332	3k3 5% 0.1W
3881	4822 051 20332	3k3 5% 0.1W
3882	4822 051 20332	3k3 5% 0.1W
3883	4822 051 20822	8k2 5% 0.1W
3884	4822 117 11507	6k8 1% 0.1W
3885	4822 117 11148	56k 1% 0.1W
3886	4822 051 20393	39k 5% 0.1W
3887	4822 117 11373	100Ω 1% 0805
3888	4822 051 20562	5k6 5% 0.1W 0805

3895	4822 051 30103	10k 5% 0.062W
3899	4822 051 20008	Jumper 0805
4xxx	4822 051 10008	Jumper 1206
4xxx	4822 051 20008	Jumper 0805

5002	4822 157 11775	6.8µH 5%
5101	4822 157 11775	6.8µH 5%
5102	4822 157 71303	0.39µH 10%
5103	4822 157 11776	Coil var. 40.4MHz
5106	4822 157 10977	4.7µH 10%
5108	2422 549 44811	Coil var.78MHz
5301	4822 157 11876	6.8µH 10% 0805
5302	4822 157 11876	6.8µH 10% 0805
5305	4822 051 20008	Jumper 0805
5306	4822 051 20008	Jumper 0805
5307	4822 051 20008	Jumper 0805
5501	4822 157 11775	6.8µH 5% 5X3
5502	4822 157 11775	6.8µH 5% 5X3
5540	4822 157 71304	1µH
5559	4822 157 11775	6.8µH 5% 5X3
5560	4822 157 11775	6.8µH 5% 5X3
5562	4822 157 11775	6.8µH 5% 5X3
5751	4822 157 11775	6.8µH 5% 5X3
5752	4822 157 11775	6.8µH 5% 5X3
5753	4822 157 11775	6.8µH 5% 5X3
5757	4822 157 11876	6.8µH 10% 0805
5759	4822 157 70503	4.7µH

6001	4822 130 11422	PLVA2650A
6002	4822 130 11422	PLVA2650A
6003	4822 130 11422	PLVA2650A
6004	4822 130 11422	PLVA2650A
6006	4822 130 11422	PLVA2650A
6008	4822 130 11422	PLVA2650A
6009	4822 130 11422	PLVA2650A
6012	4822 130 11422	PLVA2650A
6013	4822 130 11422	PLVA2650A
6017	4822 130 11422	PLVA2650A
6019	4822 130 11422	PLVA2650A
6021	4822 130 11422	PLVA2650A
6023	4822 130 11422	PLVA2650A
6025	4822 130 11423	PLVA2656A
6026	4822 130 11423	PLVA2656A
6037	9322 129 34685	BZM55-C3V9
6039	4822 130 83757	MCL4148
6040	9322 129 37685	BZM55-C5V6
6101	9322 149 10685	BZM55-C33
6103	4822 130 11525	1SS356
6104	4822 130 11525	1SS356
6106	4822 130 83757	MCL4148
6107	4822 130 83757	MCL4148
6200	9322 129 40685	BZM55-C10
6201	9322 129 38685	BZM55-C6V8
6202	9322 129 40685	BZM55-C10
6203	9322 129 40685	BZM55-C10
6204	9322 129 38685	BZM55-C6V8
6205	9322 129 40685	BZM55-C10
6206	9322 129 40685	BZM55-C10
6207	9322 129 38685	BZM55-C6V8
6208	9322 129 40685	BZM55-C10
6209	9322 129 40685	BZM55-C10
6210	9322 129 38685	BZM55-C6V8
6211	9322 129 38685	BZM55-C6V8
6212	9322 129 38685	BZM55-C6V8
6213	9322 129 38685	BZM55-C6V8
6214	9322 129 40685	BZM55-C10
6215	9322 129 40685	BZM55-C10
6216	9322 129 40685	BZM55-C10
6217	9322 129 40685	BZM55-C10
6218	9340 548 61115	PDZ12B
6219	9322 129 38685	BZM55-C6V8
6220	9322 129 40685	BZM55-C10
6221	9322 129 40685	BZM55-C10
6222	9322 129 38685	BZM55-C6V8
6223	9322 129 40685	BZM55-C10
6224	9322 129 40685	BZM55-C10
6225	9322 129 38685	BZM55-C6V8
6226	9322 129 38685	BZM55-C6V8
6227	9322 129 38685	BZM55-C6V8
6228	9322 129 38685	BZM55-C6V8
6229	9322 129 40685	BZM55-C10
6230	9322 129 40685	BZM55-C10
6231	9322 129 40685	BZM55-C10
6232	9322 129 40685	BZM55-C10
6233	9322 129 38685	BZM55-C6V8
6238	4822 130 11528	1PS76SB10
6240	9322 129 40685	BZM55-C10
6241	9322 129 40685	BZM55-C10
6242	9322 129 40685	BZM55-C10
6243	9322 129 40685	BZM55-C10
6244	9322 129 38685	BZM55-C6V8
6250	4822 130 11528	1PS76SB10
6340	4822 130 83757	MCL4148
6341	4822 130 11594	BZX284-C47
6344	4822 130 83757	MCL4148
6350	4822 130 82346	BZV55-C27
6420	9322 129 37685	BZM55-C5V6
6422	4822 130 83757	MCL4148
6424	4822 130 83757	MCL4148
6429	9322 129 37685	BZM55-C5V6
6430	4822 130 83757	MCL4148
6431	4822 130 83757	MCL4148
6750	4822 051 20008	Jumper 0805
6751	9322 129 40685	BZM55-C10
6752	9322 129 40685	BZM55-C10
6755	9322 129 40685	BZM55-C10
6756	9322 129 40685	BZM55-C10
6757	4822 051 20008	Jumper 0805
6759	4822 130 83757	MCL4148

7001	9322 157 20668	MSM51V18165F-60J
7002	4822 816 11247	M27V160-100B1
7003	9352 629 88557	SAA5801H/011
7006	4822 130 60373	BC856B
7007	4822 130 60511	BC847B
7008	4822 209 16977	M24C32-WBN6
7009	4822 209 16978	LF33CV
7010	4822 209 73852	PMBT2369
7011	4822 130 11155	PDTC114ET
7012	3198 010 44010	PDTA114ET
7013	9322 149 03668	M29W400BT-90M1
7014	4822 130 60511	BC847B
7015	4822 130 60373	BC856B
7016	4822 130 60511	BC847B
7019	4822 130 10255	MUN2213
7103	4822 130 60511	BC847B
7104	4822 130 60511	BC847B
7107	4822 130 60373	BC856B
7111	4822 130 60511	BC847B
7112	4822 130 60511	BC847B
7113	4822 209 72042	L78L05ACZ
7200	4822 130 40959	BC547B
7201	4822 130 40959	BC547B
7203	4822 130 44568	BC557B
7204	4822 130 60511	BC847B
7205	4822 130 60511	BC847B
7206	4822 130 60511	BC847B
7207	4822 130 60373	BC856B
7208	9322 105 08668	TEA6415CD
7216	4822 130 60511	BC847B
7300	9352 625 23518	TDA9330H/N2
7341	4822 130 60373	BC856B
7351	4822 130 60373	BC856B
7417	4822 130 10255	MUN2213
7418	4822 130 60373	BC856B
7419	4822 130 60373	BC856B
7420	4822 130 60373	BC856B
7424	4822 130 60373	BC856B
7501	9352 625 24518	TDA9321H/N2
7502	4822 130 60511	BC847B
7555	4822 130 60373	BC856B
7560	4822 209 12998	SAA4961/V3/S1
7561	4822 130 60511	BC847B
7575	4822 130 60511	BC847B
7701	4822 130 60511	BC847B
7751	9322 148 35668	MSP3410D-PS-C5
7752	5322 209 11102	HEF4052BT
7753	5322 209 11102	HEF4052BT
7757	4822 209 31378	NJM4556MB
7773	4822 130 60511	BC847B
7774	4822 130 60511	BC847B
7777	9322 116 87668	TEA6422D

Feature Box [L]

Various

0025	3104 301 23824	FBX-shield top
0026	3104 301 23834	FBX-shield botom
0361	2422 025 15389	9P male
0362	2422 025 15389	9P male
1701	4822 242 10685	Crystal 12MHz

2701	4822 126 11663	12pF
2704	4822 126 11663	12pF
2707	4822 126 11663	12pF
2709	4822 126 14305	100nF 10% 16V 0603
2710	4822 124 80791	470µF 16V 20%
2712	4822 126 13881	470pF 5% 50V
2713	4822 122 33761	22pF 5% 50V
2714	4822 122 33761	22pF 5% 50V
2718	4822 122 33752	15pF 5% 50V
2719	4822 122 33752	15pF 5% 50V
2720	4822 122 33752	15pF 5% 50V
2721	4822 122 31765	100pF 2% 63V
2722	4822 122 31765	100pF 2% 63V
2723	4822 126 14225	56pF 5% 50V 0603
2724	4822 126 14225	56pF 5% 50V 0603
2725	4822 124 40248	10µF 20% 63V
2726	4822 126 14305	100nF 10% 16V 0603
2727	4822 124 40255	100µF 20% 63V
2728	4822 124 40248	10µF 20% 63V
2729	4822 126 14305	100nF 10% 16V 0603
2730	4822 124 40255	100µF 20% 63V
2740	4822 126 14494	22nF 10% 25V 0603
2741	4822 126 14494	22nF 10% 25V 0603
2742	4822 126 14494	22nF 10% 25V 0603
2745	4822 126 14305	100nF 10% 16V 0603
2746	4822 126 14305	100nF 10% 16V 0603
2747	4822 124 40769	4.7µF 20% 100V
2748	4822 126 14305	100nF 10% 16V 0603
2749	4822 124 40255	100µF 20% 63V
2750	4822 126 14305	100nF 10% 16V 0603
2751	4822 126 14305	100nF 10% 16V 0603
2752	4822 126 14305	100nF 10% 16V 0603
2753	4822 126 14305	100nF 10% 16V 0603
2754	4822 124 40769	4.7µF 20% 100V
2755	4822 126 14305	100nF 10% 16V 0603
2756	4822 126 14305	100nF 10% 16V 0603
2757	4822 126 14494	22nF 10% 25V 0603
2758	4822 126 14507	18pF 5% 50V 0603
2759	4822 126 14507	18pF 5% 50V 0603
2760	4822 126 14305	100nF 10% 16V 0603
2761	4822 126 14305	100nF 10% 16V 0603
2762	4822 126 14305	100nF 10% 16V 0603
2763	4822 126 14305	100nF 10% 16V 0603
2764	4822 126 14305	100nF 10% 16V 0603
2765	4822 126 14305	100nF 10% 16V 0603
2766	4822 126 14305	100nF 10% 16V 0603
2767	4822 126 14305	100nF 10% 16V 0603
2769	4822 126 14305	100nF 10% 16V 0603
2773	4822 126 14305	100nF 10% 16V 0603
2775	4822 126 14305	100nF 10% 16V 0603
2777	4822 126 14305	100nF 10% 16V 0603
2779	4822 126 14305	100nF 10% 16V 0603
2781	4822 126 14305	100nF 10% 16V 0603
2782	4822 126 14305	100nF 10% 16V 0603
2783	4822 126 14305	100nF 10% 16V 0603
2784	4822 126 14305	100nF 10% 16V 0603
2785	4822 126 14305	100nF 10% 16V 0603
2786	4822 126 14305	100nF 10% 16V 0603
2787	4822 126 14305	100nF 10% 16V 0603
2788	4822 126 14305	100nF 10% 16V 0603
2789	4822 126 14305	100nF 10% 16V 0603
2790	4822 126 14305	100nF 10% 16V 0603
2791	4822 126 14305	100nF 10% 16V 0603
2792	4822 124 40248	10µF 20% 63V
2793	4822 126 14305	100nF 10% 16V 0603
2794	4822 124 40248	10µF 20% 63V
2795	4822 126 14305	100nF 10% 16V 0603
2796	4822 126 14305	100nF 10% 16V 0603
2797	4822 126 14305	100nF 10% 16V 0603
2798	4822 126 14305	100nF 10% 16V 0603
2799	4822 126 14305	100nF 10% 16V 0603
2800	4822 126 14305	100nF 10% 16V 0603
2801	4822 126 14305	100nF 10% 16V 0603
2802	4822 126 14305	100nF 10% 16V 0603
2803	4822 126 14305	100nF 10% 16V 0603
2804	4822 126 14305	100nF 10% 16V 0603
2805	4822 126 14305	100nF 10% 16V 0603
2806	4822 124 40255	100µF 20% 63V
2807	4822 126 14305	100nF 10% 16V 0603
2808	4822 124 40248	10µF 20% 63V
2809	4822 126 14305	100nF 10% 16V 0603
2813	4822 126 14305	100nF 10% 16V 0603
2817	4822 126 14305	100nF 10% 16V 0603
2822	4822 126 14305	100nF 10% 16V 0603
2825	4822 126 14305	100nF 10% 16V 0603
2826	4822 126 14305	100nF 10% 16V 0603
2829	4822 126 14305	100nF 10% 16V 0603
2832	4822 126 14305	100nF 10% 16V 0603
2833	4822 126 14305	100nF 10% 16V 0603
2835	4822 126 14305	100nF 10% 16V 0603
2838	4822 126 14305	100nF 10% 16V 0603
2845	4822 126 14305	100nF 10% 16V 0603
2847	4822 126 14305	100nF 10% 16V 0603
2848	4822 126 14305	100nF 10% 16V 0603
2849	4822 126 14305	100nF 10% 16V 0603
2850	4822 126 14305	100nF 10% 16V 0603

2851	4822 126 14305	100nF 10% 16V 0603
2852	4822 126 14305	100nF 10% 16V 0603
2853	4822 126 14305	100nF 10% 16V 0603
2854	4822 126 14305	100nF 10% 16V 0603
2855	4822 126 14305	100nF 10% 16V 0603
2856	4822 126 14305	100nF 10% 16V 0603
2858	4822 126 14305	100nF 10% 16V 0603
2859	4822 126 14305	100nF 10% 16V 0603
2860	4822 126 14305	100nF 10% 16V 0603
2861	4822 126 14305	100nF 10% 16V 0603
2862	4822 126 14305	100nF 10% 16V 0603
2863	4822 126 14305	100nF 10% 16V 0603
2864	4822 126 14305	100nF 10% 16V 0603
2865	4822 126 14305	100nF 10% 16V 0603
2866	4822 126 14305	100nF 10% 16V 0603
2867	4822 126 14305	100nF 10% 16V 0603
2868	4822 124 40248	10µF 20% 63V
2869	4822 126 14305	100nF 10% 16V 0603
2870	4822 124 40255	100µF 20% 63V
2871	4822 126 14305	100nF 10% 16V 0603
2872	4822 126 14305	100nF 10% 16V 0603
2885	4822 126 14305	100nF 10% 16V 0603
2888	4822 126 14305	100nF 10% 16V 0603
2889	4822 126 14305	100nF 10% 16V 0603
2890	4822 126 14305	100nF 10% 16V 0603
2891	4822 126 14305	100nF 10% 16V 0603
2892	4822 126 14305	100nF 10% 16V 0603
2893	4822 126 14305	100nF 10% 16V 0603
2894	4822 126 14305	100nF 10% 16V 0603
2895	4822 126 14305	100nF 10% 16V 0603
2896	4822 126 14305	100nF 10% 16V 0603
2897	4822 124 40248	10µF 20% 63V
2898	4822 126 14305	100nF 10% 16V 0603
2899	4822 126 14305	100nF 10% 16V 0603
2901	4822 126 14305	100nF 10% 16V 0603
2902	4822 126 14305	100nF 10% 16V 0603
2903	4822 126 14305	100nF 10% 16V 0603
2904	4822 126 14305	100nF 10% 16V 0603
2905	4822 126 14305	100nF 10% 16V 0603
2906	4822 126 14305	100nF 10% 16V 0603
2907	4822 126 14305	100nF 10% 16V 0603
2908	4822 126 14305	100nF 10% 16V 0603
2909	4822 124 40255	100µF 20% 63V
2910	4822 126 11669	27pF
2911	4822 126 14223	2.2pF +-0.25pF 50V 0603
2912	4822 126 11663	12pF
2913	4822 126 11663	12pF
2914	4822 126 11669	27pF
2915	4822 126 11663	12pF
2916	4822 126 11663	12pF
2917	4822 126 14223	2.2pF +-0.25pF 50V 0603
2918	4822 126 14223	2.2pF +-0.25pF 50V 0603
2920	4822 126 11669	27pF
2921	4822 126 11663	12pF
2922	4822 126 11663	12pF
2923	4822 126 14305	100nF 10% 16V 0603
2924	4822 126 14305	100nF 10% 16V 0603
2925	4822 126 14305	100nF 10% 16V 0603
2926	4822 126 14305	100nF 10% 16V 0603
2927	4822 126 14305	100nF 10% 16V 0603
2928	4822 126 14305	100nF 10% 16V 0603
2929	4822 126 13956	68pF 5% 63V 0603

3700	4822 051 30008	Jumper 0603
3701	4822 051 30008	Jumper 0603
3702	4822 051 30008	Jumper 0603
3703	4822 051 30221	220Ω 5% 0.062W
3704	4822 051 30221	220Ω 5% 0.062W
3705	4822 051 30221	220Ω 5% 0.062W
3709	4822 051 30101	100Ω 5% 0.062W
3710	4822 051 30101	100Ω 5% 0.062W
3713	4822 051 30181	180Ω 5% 0.062W
3714	4822 051 30181	180Ω 5% 0.062W
3715	4822 051 30181	180Ω 5% 0.062W
3716	4822 117 13632	100k 1% 0.62W 0603
3717	4822 117 13632	100k 1% 0.62W 0603
3718	4822 117 13632	100k 1% 0.62W 0603
3719	4822 051 30008	Jumper 0603
3720	4822 051 30008	Jumper 0603
3721	4822 051 30008	Jumper 0603
3725	4822 051 30332	3k3 5% 0.062W
3726	4822 117 11817	1k2 1% 1/16W
3727	4822 051 30151	150Ω 5% 0.062W
3728	4822 051 30151	150Ω 5% 0.062W
3729	4822 051 30689	68Ω 5% 0.063W 0603
3730	4822 051 30689	68Ω 5% 0.063W 0603
3731	4822 051 30472	4k7 5% 0.062W
3732	4822 051 30472	4k7 5% 0.062W
3733	4822 051 30472	4k7 5% 0.062W
3735	4822 051 30472	4k7 5% 0.062W
3740	4822 051 30008	Jumper 0603
3741	4822 051 30008	Jumper 0603
3742	4822 051 30008	Jumper 0603
3752	4822 117 12917	1Ω 5% 0.062W 0603
3753	4822 117 12917	1Ω 5% 0.062W 0603
3758	4822 051 30472	4k7 5% 0.062W
3759	4822 051 30221	220Ω 5% 0.062W
3760	4822 051 30105	1M 5% 0.062W
3762	4822 051 30339	33Ω 5% 0.062W
3763	4822 117 12139	22Ω 5% 0.062W
3764	4822 051 30109	10Ω 5% 0.062W
3773	4822 117 12925	47k 1% 0.063W 0603
3774	4822 117 12925	47k 1% 0.063W 0603
3781	4822 117 12925	47k 1% 0.063W 0603
3782	4822 117 12925	47k 1% 0.063W 0603
3783	4822 117 12925	47k 1% 0.063W 0603
3784	4822 051 30102	1k 5% 0.062W
3787	4822 051 30154	150k 5% 0.062W
3788	4822 117 12891	220k 1%
3789	4822 051 30472	4k7 5% 0.062W
3790	4822 051 30101	100Ω 5% 0.062W
3791	4822 051 30101	100Ω 5% 0.062W
3792	4822 051 30102	1k 5% 0.062W
3793	4822 051 30392	3k9 5% 0.063W 0603
3794	4822 117 12903	1k8 1% 0.063W 0603
3795	4822 051 30183	18k 5% 0.062W
3796	4822 051 30123	12k 5% 0.062W
3797	4822 051 30153	15k 5% 0.062W
3798	4822 051 30183	18k 5% 0.062W
3803	5322 117 13058	150Ω 1% 0.063W 0603
3804	5322 117 13058	150Ω 1% 0.063W 0603
3805	4822 051 30102	1k 5% 0.062W
3806	4822 051 30102	1k 5% 0.062W
3811	5322 117 13058	150Ω 1% 0.063W 0603
3812	5322 117 13058	150Ω 1% 0.063W 0603
3813	5322 117 13058	150Ω 1% 0.063W 0603
3820	5322 117 13058	150Ω 1% 0.063W 0603
3826	4822 051 30759	75Ω 5% 0.062W
3827	4822 051 30759	75Ω 5% 0.062W
3828	4822 051 30471	470Ω 5% 0.062W
3829	4822 051 30391	390Ω 5% 0.062W
3830	4822 051 30271	270Ω 5% 0.062W
3831	4822 051 30681	680Ω 5% 0.062W
3832	4822 117 13577	330Ω 1% 1.25W 0805
3833	4822 051 30759	75Ω 5% 0.062W
3834	4822 051 30759	75Ω 5% 0.062W
3835	4822 051 30759	75Ω 5% 0.062W
3836	4822 051 30759	75Ω 5% 0.062W
3837	4822 051 30471	470Ω 5% 0.062W
3838	4822 051 30391	390Ω 5% 0.062W
3839	4822 051 30471	470Ω 5% 0.062W
3840	4822 051 30102	1k 5% 0.062W
3841	4822 117 13577	330Ω 1% 1.25W 0805
3842	4822 051 30759	75Ω 5% 0.062W
3843	4822 051 30759	75Ω 5% 0.062W
3844	4822 051 30759	75Ω 5% 0.062W
3845	4822 051 30759	75Ω 5% 0.062W
3846	4822 051 30471	470Ω 5% 0.062W
3847	4822 051 30391	390Ω 5% 0.062W
3848	4822 051 30391	390Ω 5% 0.062W
3849	4822 051 30331	330Ω 5% 0.062W
3850	4822 117 13577	330Ω 1% 1.25W 0805
3851	4822 051 30759	75Ω 5% 0.062W
3852	4822 051 30759	75Ω 5% 0.062W
3853	4822 117 12902	8k2 1% 0.063W 0603
3854	4822 051 30392	3k9 5% 0.063W 0603
3855	4822 051 30102	1k 5% 0.062W
3856	4822 051 30102	1k 5% 0.062W
3857	4822 052 10109	10Ω 5% 0.33W
3858	4822 051 30222	2k2 5% 0.062W
3859	4822 051 30222	2k2 5% 0.062W
3860	4822 051 30102	1k 5% 0.062W
3861	4822 051 30332	3k3 5% 0.062W
3862	4822 051 30103	10k 5% 0.062W
3863	4822 051 30681	680Ω 5% 0.062W
3864	4822 117 12925	47k 1% 0.063W 0603
3865	4822 051 30472	4k7 5% 0.062W
3870	4822 051 30109	10Ω 5% 0.062W
3871	4822 117 12971	15Ω 5% 0.62W 0603
3872	4822 117 12925	47k 1% 0.063W 0603
3999	4822 051 30102	1k 5% 0.062W

5700	4822 157 71304	1µH 10%
5701	4822 157 71304	1µH 10%
5702	4822 157 71304	1µH 10%
5703	4822 157 11716	Bead 100MHz 30Ω
5704	4822 157 11716	Bead 100MHz 30Ω
5705	4822 157 11716	Bead 100MHz 30Ω
5706	4822 157 11716	Bead 100MHz 30Ω
5707	4822 051 20008	Jumper 0805
5708	4822 051 20008	Jumper 0805
5709	4822 051 20008	Jumper 0805
5710	4822 156 21729	Bead 100MHz 1k
5711	4822 156 21729	Bead 100MHz 1k
5712	4822 156 21729	Bead 100MHz 1k
5713	4822 157 11716	Bead 100MHz 30Ω
5714	4822 157 71206	Bead 100MHz 600Ω
5715	4822 156 21729	Bead 100MHz 1k
5716	4822 156 21729	Bead 100MHz 1k
5717	4822 156 21729	Bead 100MHz 1k
5718	4822 157 11716	Bead 100MHz 30Ω
5719	4822 156 21729	Bead 100MHz 1k
5723	4822 157 11716	Bead 100MHz 30Ω
5724	4822 157 71206	Bead 100MHz 600Ω
5725	4822 157 71206	Bead 100MHz 600Ω
5726	4822 156 21729	Bead 100MHz 1k
5727	4822 156 21729	Bead 100MHz 1k
5728	4822 157 71206	Bead 100MHz 600Ω
5729	4822 156 21729	Bead 100MHz 1k
5730	4822 157 11716	Bead 100MHz 30Ω
5731	4822 156 21729	Bead 100MHz 1k
5732	4822 157 10586	2.2µH 10% 0805
5733	4822 157 10586	2.2µH 10% 0805
5734	4822 157 10586	2.2µH 10% 0805
5736	4822 156 21729	Bead 100MHz 1k

7703	4822 209 73852	PMBT2369
7704	4822 209 73852	PMBT2369
7705	4822 209 17398	LD1117DT33
7706	9322 160 50668	LD1117DT25
7711	3104 317 43531	Software RE1F2_04
7712	5322 209 60424	74HC573D
7713	9352 688 09557	SAA4978H/V204
7714	9965 000 02179	MS81V04160-25TB
7717	9322 146 01668	MSM54V12222A-23JS
7718	9352 695 58557	SAA4993H/V1
7719	9322 146 01668	MSM54V12222A-23JS
7720	4822 209 17398	LD1117DT33
7722	9965 000 02179	MS81V04160-25TB
7723	9965 000 02179	MS81V04160-25TB
7724	9322 174 33702	T8F24EF EAGLE
7725	9322 160 50668	LD1117DT25
7727	4822 130 60511	BC847B
7728	4822 130 60511	BC847B
7729	4822 130 60511	BC847B
7730	5322 130 42718	BFS20
7731	5322 130 42718	BFS20
7732	5322 130 42718	BFS20
7733	5322 130 42718	BFS20
7734	5322 130 42718	BFS20
7735	5322 130 42718	BFS20
7736	4822 130 60511	BC847B
7739	9322 170 14668	LF15ABDT
7740	4822 209 73852	PMBT2369
7741	4822 209 73852	PMBT2369

Full Dual Screen Panel [M]

Various

0344	4822 267 10963	3P white
0346	4822 267 10967	3P black
0347	4822 267 10969	3P red
0348	4822 267 11043	3P yellow
0351	2422 025 15391	11P male
0352	2422 025 15391	11P male
1102	3139 147 18841	Tuner UV1316/A P X-3
1105	4822 242 10688	Filter OFWK9456M
1107	4822 242 72211	Filter 5.5 MHz
1109	4822 242 81436	Filter OFWK3953M
1198	3104 301 08351	Cable phono-phono 120mm
1525	4822 242 10695	Crystal 4.433 619 MHz
1528	4822 242 10697	Crystal 3.579 545 MHz
1601	4822 242 10314	Filter 5.5 MHz
1602	4822 242 81265	Filter 6.0
1603	4822 242 81299	Filter 6.5
1800	2422 086 10581	Prot dev 65V 400mA
8347	3104 301 09062	Cable 3P 220mm red
8348	3104 301 08493	Cable 3P 140mm yellow

2101	4822 124 80195	470µF 20% 10V
2102	4822 126 13473	220nF 80-20% 50V
2104	4822 122 33177	10nF 20% 50V
2105	4822 122 33177	10nF 20% 50V
2106	4822 122 33575	220pF 5% 63V
2107	4822 126 13956	68pF 5% 63V 0603
2108	5322 126 10225	1P5 5%
2109	4822 124 22652	2.2µF 20% 50V
2110	4822 124 21913	1µF 20% 63V

2111	4822 126 14585	100nF 10% 50V
2112	4822 122 33891	3.3nF 10% 63V
2116	4822 124 12095	100µF 20% 16V
2117	4822 126 14076	220nF 20-80% 25V
2118	4822 126 14487	8.2pF 0.5% 50V 0603
2119	5322 122 31863	330pF 5% 63V
2120	4822 126 14076	220nF 20-80% 25V
2140	4822 126 14491	2.2µF 10V
2501	4822 126 14305	100nF 10% 16V 0603
2504	4822 126 14305	100nF 10% 16V 0603
2520	4822 126 14305	100nF 10% 16V 0603
2521	4822 126 14305	100nF 10% 16V 0603
2522	5322 126 11579	3.3nF 10% 63V
2525	4822 126 14507	18pF 5% 50V 0603
2528	4822 122 33752	15pF 5% 50V
2532	4822 126 14043	1µF 20% 16V
2534	5322 126 10223	4.7nF 10% 63V
2536	4822 126 14491	2.2µF 10V
2537	4822 126 14585	100nF 10% 50V
2538	4822 124 80151	47µF 16V
2539	4822 126 14585	100nF 10% 50V
2540	4822 124 80151	47µF 16V
2541	4822 126 14585	100nF 10% 50V
2545	4822 126 14305	100nF 10% 16V 0603
2600	4822 126 14491	2.2µF 10V
2601	4822 126 14585	100nF 10% 50V
2603	4822 126 14491	2.2µF 10V
2605	4822 126 14585	100nF 10% 50V
2620	4822 122 32927	220nF 20% 50V
2621	4822 126 14585	100nF 10% 50V
2622	4822 122 32927	220nF 20% 50V
2623	4822 122 32927	220nF 20% 50V
2624	5322 124 41945	22µF 20% 35V
2625	4822 122 32927	220nF 20% 50V
2626	4822 126 14585	100nF 10% 50V
2627	5322 122 32654	22nF 10% 63V
2628	4822 126 14585	100nF 10% 50V
2629	4822 122 32927	220nF 20% 50V
2630	4822 124 80408	4.7µF 20% 50V
2632	4822 122 32927	220nF 20% 50V
2633	4822 126 14585	100nF 10% 50V
2638	4822 126 14491	2.2µF 10V
2639	4822 124 23002	10µF 16V
2640	4822 124 23002	10µF 16V
2650	4822 124 80195	470µF 20% 10V
2748	4822 126 14305	100nF 10% 16V 0603
2749	4822 126 14305	100nF 10% 16V 0603
2752	4822 126 14305	100nF 10% 16V 0603
2753	4822 126 14305	100nF 10% 16V 0603
2754	4822 126 14305	100nF 10% 16V 0603
2755	4822 126 14305	100nF 10% 16V 0603
2756	4822 126 14305	100nF 10% 16V 0603
2757	4822 126 14305	100nF 10% 16V 0603
2758	3198 017 41050	1µF 10V 0603
2759	4822 126 14305	100nF 10% 16V 0603
2761	4822 126 14305	100nF 10% 16V 0603
2762	4822 126 14305	100nF 10% 16V 0603
2763	4822 126 14305	100nF 10% 16V 0603
2766	4822 126 14305	100nF 10% 16V 0603
2767	4822 126 14305	100nF 10% 16V 0603
2768	4822 126 14305	100nF 10% 16V 0603
2769	4822 126 14305	100nF 10% 16V 0603
2770	4822 126 14305	100nF 10% 16V 0603
2771	4822 126 14305	100nF 10% 16V 0603
2772	4822 126 14305	100nF 10% 16V 0603
2773	4822 126 14305	100nF 10% 16V 0603
2774	4822 126 14305	100nF 10% 16V 0603
2775	4822 126 14305	100nF 10% 16V 0603
2776	4822 126 14305	100nF 10% 16V 0603
2777	4822 126 14305	100nF 10% 16V 0603
2778	4822 126 14305	100nF 10% 16V 0603
2779	4822 126 14305	100nF 10% 16V 0603
2780	4822 126 14305	100nF 10% 16V 0603
2781	4822 126 14305	100nF 10% 16V 0603
2782	4822 126 14305	100nF 10% 16V 0603
2783	4822 124 23002	10µF 16V
2784	4822 124 23002	10µF 16V
2785	4822 122 33177	10nF 20% 50V
2786	4822 122 33177	10nF 20% 50V
2787	4822 126 14305	100nF 10% 16V 0603
2788	5322 122 32531	100pF 5% 50V
2789	4822 126 13692	47pF 1% 63V
2791	5322 122 32658	22pF 5% 50V
2794	5322 122 32658	22pF 5% 50V
2795	4822 124 12095	100µF 20% 16V
2796	4822 124 12095	100µF 20% 16V
2797	4822 124 12095	100µF 20% 16V
2800	4822 126 13879	220nF 20% 16V
2801	4822 126 13879	220nF 20% 16V
2802	4822 126 13879	220nF 20% 16V
2803	4822 126 13879	220nF 20% 16V
2804	4822 126 13879	220nF 20% 16V
2805	4822 126 13879	220nF 20% 16V
2807	4822 126 14585	100nF 10% 50V
2840	4822 126 14585	100nF 10% 50V
2860	4822 126 14305	100nF 10% 16V 0603
2880	5322 124 41945	22µF 20% 35V
2881	4822 124 40433	47µF 20% 25V
2882	4822 124 11912	220µF 20% 6.3V
2883	4822 124 12095	100µF 20% 16V
2884	4822 126 14491	2.2µF 10V
2890	4822 126 14585	100nF 10% 50V
2891	4822 126 14585	100nF 10% 50V
2922	4822 126 14241	330pF 50V 0603
2923	4822 126 14305	100nF 10% 16V 0603
2932	4822 122 33753	150pF 5% 50V
2934	4822 126 14305	100nF 10% 16V 0603
2942	4822 122 33753	150pF 5% 50V
2944	4822 126 14305	100nF 10% 16V 0603
2972	4822 126 14241	330pF 50V 0603
2973	4822 126 14305	100nF 10% 16V 0603
2982	4822 122 33753	150pF 5% 50V
2983	4822 126 14305	100nF 10% 16V 0603
2992	4822 122 33753	150pF 5% 50V
2993	4822 126 14305	100nF 10% 16V 0603

─▭─

3100	4822 051 20273	27k 5% 0.1W
3101	4822 051 20273	27k 5% 0.1W
3102	4822 051 30562	5k6 5% 0.063W 0603
3103	4822 051 20008	Jumper 0805
3104	4822 051 20008	Jumper 0805
3106	4822 117 11927	75Ω 1% 0.1W
3110	4822 117 11449	2k2 5% 0.1W 0805
3111	4822 117 11449	2k2 5% 0.1W 0805
3112	4822 051 20472	4k7 5% 0.1W
3114	4822 051 20472	4k7 5% 0.1W
3118	4822 051 20391	390Ω 5% 0.1W
3119	4822 117 12521	68Ω 1% 0.1W
3124	4822 051 30101	100Ω 5% 0.062W
3133	4822 117 12955	2k7 1% 0.1W 0805
3135	4822 051 20472	4k7 5% 0.1W
3136	4822 117 11503	220Ω 1% 0.1W
3137	4822 051 10102	1k 2% 0.25W
3138	4822 117 11448	180Ω 1% 0.1W
3139	4822 117 11139	1k5 1% 0.1W
3140	4822 051 30393	39k 5% 0.062W
3142	4822 051 10102	1k 2% 0.25W
3143	4822 051 10102	1k 2% 0.25W
3145	4822 051 20121	120Ω 5% 0.1W
3146	4822 051 20223	22k 5% 0.1W
3151	4822 052 10128	1Ω2 5% 0.33W
3501	4822 051 30101	100Ω 5% 0.062W
3504	4822 051 30101	100Ω 5% 0.062W
3521	4822 117 13632	100k 1% 0.62W 0603
3530	4822 051 30101	100Ω 5% 0.062W
3531	4822 051 30101	100Ω 5% 0.062W
3532	4822 116 83933	15k 1% 0.1W
3538	4822 052 10228	2Ω2 5% 0.33W
3545	4822 051 30471	470Ω 5% 0.062W
3546	4822 051 30471	470Ω 5% 0.062W
3550	4822 051 20471	470Ω 5% 0.1W
3601	4822 117 10361	680Ω 1% 0.1W
3602	4822 051 20471	470Ω 5% 0.1W
3603	4822 051 20471	470Ω 5% 0.1W
3604	4822 051 20273	27k 5% 0.1W
3605	4822 051 20391	390Ω 5% 0.1W
3620	4822 117 11507	6k8 1% 0.1W
3621	4822 117 11507	6k8 1% 0.1W
3622	4822 117 11373	100Ω 1% 0805
3623	4822 117 10361	680Ω 1% 0.1W
3624	4822 117 11454	820Ω 1% 0.1W
3625	4822 117 11454	820Ω 1% 0.1W
3630	4822 051 20273	27k 5% 0.1W
3634	4822 051 20273	27k 5% 0.1W
3635	4822 051 20822	8k2 5% 0.1W
3636	4822 051 20822	8k2 5% 0.1W
3642	4822 051 20562	5k6 5% 0.1W 0805
3650	4822 052 10688	6Ω8 5% 0.33W
3747	4822 051 20223	22k 5% 0.1W
3748	4822 051 20223	22k 5% 0.1W
3750	4822 051 30393	39k 5% 0.062W
3751	4822 051 30393	39k 5% 0.062W
3752	4822 051 30103	10k 5% 0.062W
3756	4822 051 30101	100Ω 5% 0.062W
3757	4822 051 30101	100Ω 5% 0.062W
3765	4822 051 20683	68k 5% 0.1W
3766	4822 117 11139	1k5 1% 0.1W
3767	4822 051 20683	68k 5% 0.1W
3768	4822 117 11139	1k5 1% 0.1W
3780	4822 051 30222	2k2 5% 0.062W
3781	4822 117 13632	100k 1% 0.62W 0603
3782	4822 051 30222	2k2 5% 0.062W
3783	4822 117 13632	100k 1% 0.62W 0603
3796	4822 051 20121	120Ω 5% 0.1W
3797	4822 051 20121	120Ω 5% 0.1W
3798	4822 051 20121	120Ω 5% 0.1W
3799	4822 051 20121	120Ω 5% 0.1W
3842	4822 117 11503	220Ω 1% 0.1W
3843	4822 051 30221	220Ω 5% 0.062W
3880	4822 051 30102	1k 5% 0.062W
3923	4822 051 30471	470Ω 5% 0.062W
3924	4822 051 30101	100Ω 5% 0.062W
3928	4822 051 30101	100Ω 5% 0.062W
3932	4822 051 30101	100Ω 5% 0.062W
3935	4822 051 30102	1k 5% 0.062W
3937	4822 051 30151	150Ω 5% 0.062W
3942	4822 051 30101	100Ω 5% 0.062W
3943	4822 051 30102	1k 5% 0.062W
3947	4822 051 30151	150Ω 5% 0.062W
3950	4822 117 11504	270Ω 1% 0.1W
3951	4822 051 20339	33Ω 5% 0.1W
3952	4822 117 11504	270Ω 1% 0.1W
3953	4822 117 11448	180Ω 1% 0.1W
3954	4822 051 20391	390Ω 5% 0.1W
3955	4822 117 11503	220Ω 1% 0.1W
3956	4822 117 10361	680Ω 1% 0.1W
3957	4822 117 10361	680Ω 1% 0.1W
3958	4822 117 10361	680Ω 1% 0.1W
3963	4822 051 10102	1k 2% 0.25W
3964	4822 051 10102	1k 2% 0.25W
3965	4822 051 10102	1k 2% 0.25W
3972	4822 051 30471	470Ω 5% 0.062W
3974	4822 051 30101	100Ω 5% 0.062W
3978	4822 051 30101	100Ω 5% 0.062W
3981	4822 051 30101	100Ω 5% 0.062W
3983	4822 051 30102	1k 5% 0.062W
3987	4822 051 30151	150Ω 5% 0.062W
3991	4822 051 30101	100Ω 5% 0.062W
3992	4822 051 30102	1k 5% 0.062W
3997	4822 051 30151	150Ω 5% 0.062W
3999	4822 051 10102	1k 2% 0.25W
4xxx	4822 051 10008	Jumper 1206
4xxx	4822 051 20008	Jumper 0805

∿∿

5101	4822 157 11775	6.8µH 5% 5X3
5102	4822 157 71303	0.39µH 10% 0805
5103	4822 157 11776	Coil var. 40.4MHz
5106	4822 157 10977	4.7µH 10%
5108	4822 157 11534	Coil var. 78MHz
5501	4822 157 11775	6.8µH 5% 5X3
5502	4822 157 11775	6.8µH 5% 5X3
5620	4822 157 11775	6.8µH 5% 5X3
5621	4822 157 11775	6.8µH 5% 5X3
5752	4822 157 71694	0.82µH 10%
5880	2422 535 94406	2.7µH 10%
5881	4822 157 71694	0.82µH 10%
5882	4822 157 71694	0.82µH 10%
5921	4822 157 10586	2.2µH 10% 0805
5971	4822 157 10586	2.2µH 10% 0805

▶|

6103	4822 130 11525	1SS356
6104	4822 130 11525	1SS356
6106	4822 130 83757	MCL4148
6107	4822 130 83757	MCL4148
6880	9322 129 32685	BZM55-C2V7
6881	9322 129 32685	BZM55-C2V7
6883	4822 130 11422	PLVA2650A
6884	4822 130 11422	PLVA2650A

⊗ ▭

7103	4822 130 60511	BC847B
7104	4822 130 60511	BC847B
7107	4822 130 60373	BC856B
7111	4822 130 60511	BC847B
7501	9352 625 24518	TDA9321H/N2
7502	4822 130 60511	BC847B
7600	9350 399 00118	TDA9820T/V1
7620	5322 209 16349	TDA7309D
7621	4822 130 60511	BC847B
7622	4822 130 60373	BC856B
7700	9352 637 90557	SAB9079HS/N2
7750	9322 124 83668	MSM5416283-60GS
7757	4822 209 31378	NJM4556MB
7800	4822 209 12776	TDA8601T/C1
7821	9322 135 04668	74V1G08
7840	5322 209 14481	HEF4053BT
7860	4822 209 13252	PCF8574TS/F3
7880	9322 116 74668	LD1117D33
7881	9322 116 74668	LD1117D33
7903	4822 130 60383	BF824
7904	4822 130 60383	BF824
7905	4822 130 60383	BF824

7920	4822 130 60511	BC847B
7930	4822 130 60511	BC847B
7940	4822 130 60511	BC847B
7970	4822 130 60511	BC847B
7980	4822 130 60511	BC847B
7990	4822 130 60511	BC847B
7991	4822 209 16868	M24C04-WMN6

Multi Channel Sound Panel [N]

Various

0328	4822 267 10981	11P male black
0329	4822 267 10962	11P male white
0330	2422 025 14904	7P male white
0347	4822 267 10969	3P male red
0373	4822 267 10978	7P male black
0381	4822 267 10963	3P male white
1705	2422 086 10581	Prot dev 65V 400mA
1804	2422 543 01217	Crystal 40 MHz
1805	2422 543 01025	Crystal 16.93 MHz
1806	2422 543 01015	Crystal 10 MHz
1807	4822 252 51169	Fuse 0,25A
1998	2422 025 16194	Socket 8P for transmitter
1999	2422 026 04961	Socket cinch 6P white/red/black
8328	3104 301 08912	Cable 11P 220mm black
8330	3104 301 08952	Cable 7P 820mm white
8373	3104 301 08922	Cable 7P 280mm black
8381	3104 301 08932	Cable 3P 140mm white

⊣⊢

2500	4822 126 14315	390pF 5% 50V 0603
2501	4822 126 14315	390pF 5% 50V 0603
2504	5322 126 11583	10nF 10% 50V 0603
2505	4822 126 14305	100nF 10% 16V 0603
2506	4822 126 14305	100nF 10% 16V 0603
2507	2222 867 15339	33pF 5% 50V 0603
2508	2222 867 15339	33pF 5% 50V 0603
2511	4822 126 12105	33nF 5% 50V
2516	4822 122 31765	100pF 2% 63V
2517	4822 122 31765	100pF 2% 63V
2534	5322 126 11583	10nF 10% 50V 0603
2539	4822 126 14506	270pF 5% 50V 0603
2540	4822 126 14305	100nF 10% 16V 0603
2541	4822 126 14305	100nF 10% 16V 0603
2542	4822 124 23002	10µF 16V
2543	4822 124 23002	10µF 16V
2545	4822 124 23002	10µF 16V
2546	4822 124 23002	10µF 16V
2548	4822 126 14549	33nF 16V O6O3
2549	5322 126 11579	3.3nF 10% 63V
2551	4822 126 14549	33nF 16V O6O3
2552	4822 126 14549	33nF 16V O6O3
2553	3198 017 34730	47nF 16V 0603
2555	4822 124 23002	10µF 16V
2556	5322 126 11579	3.3nF 10% 63V
2557	4822 126 14549	33nF 16V O6O3
2560	3198 017 34730	47nF 16V 0603
2562	4822 124 23002	10µF 16V
2563	4822 124 23002	10µF 16V
2564	4822 124 23002	10µF 16V
2565	4822 126 14305	100nF 10% 16V 0603
2566	4822 126 14305	100nF 10% 16V 0603
2567	2222 867 15339	33pF 5% 50V 0603
2568	2222 867 15339	33pF 5% 50V 0603
2569	4822 124 23002	10µF 16V
2570	4822 126 14305	100nF 10% 16V 0603
2571	4822 126 14305	100nF 10% 16V 0603
2572	4822 124 23002	10µF 16V
2573	4822 124 23002	10µF 16V
2574	4822 124 23002	10µF 16V
2575	4822 124 23002	10µF 16V
2576	4822 124 23002	10µF 16V
2577	4822 124 23002	10µF 16V
2578	4822 126 14549	33nF 16V O6O3
2579	5322 126 11579	3.3nF 10% 63V
2580	4822 126 14549	33nF 16V O6O3
2583	3198 017 34730	47nF 16V 0603
2585	2222 867 15339	33pF 5% 50V 0603
2586	5322 126 11579	3.3nF 10% 63V
2587	4822 126 14494	22nF 10% 25V 0603
2590	3198 017 34730	47nF 16V 0603
2592	4822 124 23002	10µF 16V
2593	4822 124 23002	10µF 16V
2594	4822 124 23002	10µF 16V
2595	4822 126 14305	100nF 10% 16V 0603
2596	4822 126 14305	100nF 10% 16V 0603
2597	2222 867 15339	33pF 5% 50V 0603
2598	2222 867 15339	33pF 5% 50V 0603
2599	5322 126 11582	6.8nF 10% 63V
2600	4822 126 14305	100nF 10% 16V 0603
2601	4822 126 14305	100nF 10% 16V 0603
2602	4822 124 23002	10µF 16V
2603	4822 124 23002	10µF 16V
2605	4822 124 23002	10µF 16V
2606	4822 124 23002	10µF 16V
2607	4822 124 23002	10µF 16V
2609	5322 126 11579	3.3nF 10% 63V
2612	4822 124 40207	100µF 20% 25V
2613	3198 017 34730	47nF 16V 0603
2620	3198 017 34730	47nF 16V 0603
2622	4822 124 23002	10µF 16V
2623	4822 124 23002	10µF 16V
2624	4822 124 23002	10µF 16V
2625	4822 126 14305	100nF 10% 16V 0603
2626	4822 126 14305	100nF 10% 16V 0603
2627	2222 867 15339	33pF 5% 50V 0603
2628	2222 867 15339	33pF 5% 50V 0603
2635	4822 126 14305	100nF 10% 16V 0603
2636	4822 126 14305	100nF 10% 16V 0603
2637	5322 121 42498	680nF 5% 63V
2638	5322 121 42498	680nF 5% 63V
2639	4822 126 14305	100nF 10% 16V 0603
2641	5322 121 42498	680nF 5% 63V
2643	2222 867 15339	33pF 5% 50V 0603
2667	4822 126 14494	22nF 10% 25V 0603
2668	5322 126 11582	6.8nF 10% 63V
2669	2222 867 15339	33pF 5% 50V 0603
2679	4822 126 14585	100nF 10% 50V
2680	4822 126 14585	100nF 10% 50V
2681	5322 122 32659	33pF 5% 50V
2682	5322 122 32659	33pF 5% 50V
2690	4822 126 14305	100nF 10% 16V 0603
2704	4822 126 14305	100nF 10% 16V 0603
2705	4822 124 12095	100µF 20% 16V
2706	4822 126 14585	100nF 10% 50V
2707	4822 124 40248	10µF 20% 63V
2708	4822 126 14585	100nF 10% 50V
2709	4822 124 21913	1µF 20% 63V
2710	4822 124 40248	10µF 20% 63V
2711	4822 126 14585	100nF 10% 50V
2712	4822 124 21913	1µF 20% 63V
2713	4822 126 14585	100nF 10% 50V
2715	5322 122 32531	100pF 5% 50V
2716	4822 122 33575	220pF 5% 63V
2717	5322 122 32531	100pF 5% 50V
2718	4822 122 33575	220pF 5% 63V
2719	5322 122 32531	100pF 5% 50V
2720	4822 122 33575	220pF 5% 63V
2721	5322 122 32531	100pF 5% 50V
2722	4822 122 33575	220pF 5% 63V
2724	5322 122 32531	100pF 5% 50V
2725	5322 122 32531	100pF 5% 50V
2726	4822 122 33575	220pF 5% 63V
2727	4822 126 14585	100nF 10% 50V
2728	4822 126 14305	100nF 10% 16V 0603
2729	4822 126 14585	100nF 10% 50V
2730	5322 122 32531	100pF 5% 50V
2731	5322 122 32531	100pF 5% 50V
2732	5322 122 32531	100pF 5% 50V
2733	5322 122 32531	100pF 5% 50V
2736	4822 124 81151	22µF 50V
2737	4822 126 14585	100nF 10% 50V
2738	4822 124 40207	100µF 20% 25V
2740	5322 126 11583	10nF 10% 50V 0603
2741	5322 126 11583	10nF 10% 50V 0603
2745	4822 126 14494	22nF 10% 25V 0603
2746	5322 126 11583	10nF 10% 50V 0603
2747	5322 126 11583	10nF 10% 50V 0603
2749	4822 126 14494	22nF 10% 25V 0603
2752	5322 126 11583	10nF 10% 50V 0603
2753	5322 126 11583	10nF 10% 50V 0603
2755	4822 126 14494	22nF 10% 25V 0603
2780	4822 126 14305	100nF 10% 16V 0603
2781	4822 126 14305	100nF 10% 16V 0603
2784	4822 126 13344	1.5nF 5% 63V
2785	4822 126 13344	1.5nF 5% 63V
2786	2222 867 15339	33pF 5% 50V 0603
2787	2222 867 15339	33pF 5% 50V 0603
2790	4822 122 33177	10nF 20% 50V
2791	4822 124 22652	2.2µF 20% 50V
2793	4822 126 14506	270pF 5% 50V 0603
2794	5322 126 11583	10nF 10% 50V 0603
2795	5322 126 11583	10nF 10% 50V 0603
2796	4822 122 33177	10nF 20% 50V
2800	4822 126 14585	100nF 10% 50V
2802	4822 126 14585	100nF 10% 50V
2807	4822 126 14585	100nF 10% 50V
2809	4822 126 14585	100nF 10% 50V
2810	4822 126 14585	100nF 10% 50V
2811	4822 124 80151	47µF 16V
2812	4822 126 14305	100nF 10% 16V 0603
2813	4822 126 14305	100nF 10% 16V 0603
2814	4822 126 14305	100nF 10% 16V 0603
2815	4822 126 14305	100nF 10% 16V 0603
2816	4822 126 14305	100nF 10% 16V 0603
2817	4822 126 14585	100nF 10% 50V
2818	4822 126 14305	100nF 10% 16V 0603
2819	4822 126 14305	100nF 10% 16V 0603
2820	4822 126 13486	15pF 2% 63V
2821	4822 126 13486	15pF 2% 63V
2822	4822 126 14585	100nF 10% 50V
2823	4822 124 80151	47µF 16V
2824	4822 126 14585	100nF 10% 50V
2825	4822 126 14585	100nF 10% 50V
2826	4822 126 14305	100nF 10% 16V 0603
2827	4822 126 14305	100nF 10% 16V 0603
2828	4822 124 80151	47µF 16V
2829	4822 126 14305	100nF 10% 16V 0603
2830	4822 126 14305	100nF 10% 16V 0603
2831	5322 126 11583	10nF 10% 50V 0603
2832	3198 016 31020	0603 25V 1nF
2833	4822 126 13486	15pF 2% 63V
2834	4822 126 13486	15pF 2% 63V
2835	4822 124 80151	47µF 16V
2836	4822 126 14305	100nF 10% 16V 0603
2837	4822 122 33177	10nF 20% 50V
2838	4822 122 33761	22pF 5% 50V
2839	4822 122 33761	22pF 5% 50V
2840	4822 124 80151	47µF 16V
2841	4822 126 14585	100nF 10% 50V
2842	4822 124 80151	47µF 16V
2843	4822 126 14305	100nF 10% 16V 0603
2844	4822 124 80151	47µF 16V
2845	4822 126 14585	100nF 10% 50V
2846	4822 124 80151	47µF 16V
2847	5322 126 10511	1nF 5% 50V
2848	4822 122 31765	100pF 2% 63V
2849	4822 126 14585	100nF 10% 50V
2850	5322 122 32531	100pF 5% 50V
2851	5322 126 10511	1nF 5% 50V
2852	5322 122 32531	100pF 5% 50V
2853	4822 124 80151	47µF 16V
2854	5322 126 10511	1nF 5% 50V
2855	4822 124 80151	47µF 16V
2856	5322 126 10511	1nF 5% 50V
2857	4822 124 80151	47µF 16V
2858	5322 126 10511	1nF 5% 50V
2859	4822 124 80151	47µF 16V
2860	4822 126 14585	100nF 10% 50V
2861	4822 124 80151	47µF 16V
2862	5322 126 10511	1nF 5% 50V
2863	4822 124 80151	47µF 16V
2864	4822 126 14585	100nF 10% 50V
2865	4822 126 14585	100nF 10% 50V
2866	4822 126 14585	100nF 10% 50V
2867	4822 124 80151	47µF 16V
2868	4822 126 14585	100nF 10% 50V
2869	4822 126 14585	100nF 10% 50V
2870	4822 124 80151	47µF 16V
2871	4822 124 80151	47µF 16V
2872	5322 122 32531	100pF 5% 50V
2873	5322 126 10511	1nF 5% 50V
2874	4822 124 80151	47µF 16V
2875	4822 126 14585	100nF 10% 50V
2876	4822 124 80151	47µF 16V
2877	5322 122 32531	100pF 5% 50V
2878	5322 126 10511	1nF 5% 50V
2879	4822 124 80151	47µF 16V
2880	5322 126 10511	1nF 5% 50V
2881	4822 124 80151	47µF 16V
2882	5322 126 10511	1nF 5% 50V
2883	5322 122 32531	100pF 5% 50V
2885	4822 122 33761	22pF 5% 50V
2886	4822 122 33761	22pF 5% 50V
2887	4822 122 33761	22pF 5% 50V
2888	4822 122 33761	22pF 5% 50V
2889	4822 122 33761	22pF 5% 50V
2890	4822 122 33761	22pF 5% 50V
2891	4822 122 33761	22pF 5% 50V
2892	4822 122 33761	22pF 5% 50V
2893	4822 122 33761	22pF 5% 50V
2894	4822 122 33761	22pF 5% 50V
2900	5322 122 32531	100pF 5% 50V
2901	4822 122 31765	100pF 2% 63V
2909	4822 123 14025	16V 2200µF 20%

-▭-

3500	4822 051 30332	3k3 5% 0.062W
3501	4822 051 30332	3k3 5% 0.062W
3504	4822 051 30121	120Ω 5% 0.062W
3505	4822 051 30103	10k 5% 0.062W
3506	4822 051 30103	10k 5% 0.062W
3507	4822 051 30103	10k 5% 0.062W
3508	4822 051 30103	10k 5% 0.062W

3510	4822 051 30103	10k 5% 0.062W
3511	4822 051 30103	10k 5% 0.062W
3513	4822 051 30103	10k 5% 0.062W
3514	4822 051 30103	10k 5% 0.062W
3515	4822 051 30562	5k6 5% 0.063W 0603
3516	4822 051 30123	12k 5% 0.062W
3517	4822 051 30562	5k6 5% 0.063W 0603
3518	4822 051 30123	12k 5% 0.062W
3530	4822 051 30682	6k8 5% 0.062W
3531	4822 051 30103	10k 5% 0.062W
3532	4822 051 30682	6k8 5% 0.062W
3533	4822 051 30103	10k 5% 0.062W
3534	4822 051 30121	120Ω 5% 0.062W
3540	4822 117 13632	100k 1% 0.62W 0603
3541	4822 051 30109	10Ω 5% 0.062W
3543	4822 051 30103	10k 5% 0.062W
3547	4822 051 30101	100Ω 5% 0.062W
3548	4822 117 13632	100k 1% 0.62W 0603
3550	4822 051 30103	10k 5% 0.062W
3551	4822 051 30393	39k 5% 0.062W
3553	4822 051 30103	10k 5% 0.062W
3554	4822 051 30101	100Ω 5% 0.062W
3555	4822 117 12925	47k 1% 0.063W 0603
3556	4822 117 12903	1k8 1% 0.063W 0603
3557	4822 051 30103	10k 5% 0.062W
3558	4822 051 30103	10k 5% 0.062W
3559	4822 051 30152	1k5 5% 0.062W
3560	4822 051 30103	10k 5% 0.062W
3561	4822 051 30103	10k 5% 0.062W
3562	4822 051 30393	39k 5% 0.062W
3563	4822 051 30103	10k 5% 0.062W
3564	4822 051 30152	1k5 5% 0.062W
3565	4822 051 30103	10k 5% 0.062W
3567	4822 051 30101	100Ω 5% 0.062W
3568	4822 051 30683	68k 5% 0.062W
3569	4822 051 30683	68k 5% 0.062W
3571	4822 051 30109	10Ω 5% 0.062W
3573	4822 051 30103	10k 5% 0.062W
3575	4822 051 30101	100Ω 5% 0.062W
3576	4822 051 30472	4k7 5% 0.062W
3577	4822 117 10834	47k 1% 0.1W
3578	4822 117 11373	100Ω 1% 0805
3580	4822 117 11817	1k2 1% 1/16W
3581	4822 117 12903	1k8 1% 0.063W 0603
3582	4822 117 11817	1k2 1% 1/16W
3583	4822 051 30103	10k 5% 0.062W
3584	4822 117 12903	1k8 1% 0.063W 0603
3585	4822 117 11817	1k2 1% 1/16W
3587	4822 051 30103	10k 5% 0.062W
3589	4822 051 30152	1k5 5% 0.062W
3590	4822 051 30103	10k 5% 0.062W
3591	4822 051 30103	10k 5% 0.062W
3593	4822 051 30103	10k 5% 0.062W
3594	4822 051 30152	1k5 5% 0.062W
3595	4822 051 30103	10k 5% 0.062W
3596	4822 051 30101	100Ω 5% 0.062W
3601	4822 051 30109	10Ω 5% 0.062W
3602	4822 117 13632	100k 1% 0.62W 0603
3603	4822 051 30103	10k 5% 0.062W
3605	4822 051 30333	33k 5% 0.062W
3606	4822 117 13632	100k 1% 0.62W 0603
3608	4822 051 30331	330Ω 5% 0.062W
3609	4822 051 30153	15k 5% 0.062W
3610	4822 117 10837	100k 1% 0.1W
3611	4822 117 10833	10k 1% 0.1W
3612	4822 051 30152	1k5 5% 0.062W
3613	4822 051 30103	10k 5% 0.062W
3614	4822 051 30153	15k 5% 0.062W
3615	4822 117 13632	100k 1% 0.62W 0603
3616	4822 117 13632	100k 1% 0.62W 0603
3617	4822 051 30103	10k 5% 0.062W
3619	4822 051 30152	1k5 5% 0.062W
3620	4822 051 30103	10k 5% 0.062W
3621	4822 051 30103	10k 5% 0.062W
3623	4822 051 30472	4k7 5% 0.062W
3624	4822 051 30391	390Ω 5% 0.062W
3625	4822 117 12902	8k2 1% 0.063W 0603
3626	4822 117 10837	100k 1% 0.1W
3627	4822 117 10837	100k 1% 0.1W
3628	4822 117 10837	100k 1% 0.1W
3629	4822 117 10837	100k 1% 0.1W
3630	4822 051 20223	22k 5% 0.1W
3631	4822 117 13632	100k 1% 0.62W 0603
3632	4822 117 12925	47k 1% 0.063W 0603
3633	4822 117 13632	100k 1% 0.62W 0603
3634	4822 051 30474	470k 5% 0.062W
3638	4822 051 30102	1k 5% 0.062W
3639	4822 051 30339	33Ω 5% 0.062W
3640	4822 051 30472	4k7 5% 0.062W
3645	4822 117 11507	6k8 1% 0.1W
3646	4822 051 20332	3k3 5% 0.1W
3647	4822 117 11507	6k8 1% 0.1W
3648	4822 051 20332	3k3 5% 0.1W
3649	4822 051 30681	680Ω 5% 0.062W
3650	4822 117 11507	6k8 1% 0.1W
3651	4822 051 30333	33k 5% 0.062W
3652	4822 117 11507	6k8 1% 0.1W
3653	4822 117 11507	6k8 1% 0.1W
3658	4822 051 30682	6k8 5% 0.062W
3659	4822 051 30222	2k2 5% 0.062W
3660	4822 051 30682	6k8 5% 0.062W
3661	4822 051 30222	2k2 5% 0.062W
3663	4822 051 20332	3k3 5% 0.1W
3664	4822 051 20332	3k3 5% 0.1W
3667	4822 117 10837	100k 1% 0.1W
3671	4822 117 10833	10k 1% 0.1W
3673	4822 117 10833	10k 1% 0.1W
3675	4822 117 10837	100k 1% 0.1W
3676	4822 117 10833	10k 1% 0.1W
3678	4822 117 10833	10k 1% 0.1W
3679	4822 117 11507	6k8 1% 0.1W
3680	4822 117 11507	6k8 1% 0.1W
3682	4822 117 10837	100k 1% 0.1W
3683	4822 051 20332	3k3 5% 0.1W
3684	4822 117 10837	100k 1% 0.1W
3685	4822 117 10837	100k 1% 0.1W
3686	4822 117 10837	100k 1% 0.1W
3687	4822 051 20332	3k3 5% 0.1W
3688	4822 117 11507	6k8 1% 0.1W
3699	4822 117 10833	10k 1% 0.1W
3700	4822 117 10833	10k 1% 0.1W
3701	4822 117 13632	100k 1% 0.62W 0603
3702	4822 051 30331	330Ω 5% 0.062W
3703	4822 051 30391	390Ω 5% 0.062W
3704	4822 117 12902	8k2 1% 0.063W 0603
3705	4822 051 30221	220Ω 5% 0.062W
3706	4822 051 30221	220Ω 5% 0.062W
3707	4822 051 20471	470Ω 5% 0.1W
3708	4822 051 20471	470Ω 5% 0.1W
3709	4822 051 20471	470Ω 5% 0.1W
3710	4822 117 10837	100k 1% 0.1W
3711	4822 117 10833	10k 1% 0.1W
3712	4822 117 10837	100k 1% 0.1W
3713	4822 117 10833	10k 1% 0.1W
3715	4822 051 20471	470Ω 5% 0.1W
3716	4822 051 20223	22k 5% 0.1W
3717	4822 051 20471	470Ω 5% 0.1W
3718	4822 051 20223	22k 5% 0.1W
3719	4822 051 20471	470Ω 5% 0.1W
3720	4822 051 20223	22k 5% 0.1W
3721	4822 051 20471	470Ω 5% 0.1W
3722	4822 051 20223	22k 5% 0.1W
3724	4822 051 20223	22k 5% 0.1W
3725	4822 051 20471	470Ω 5% 0.1W
3726	4822 051 20223	22k 5% 0.1W
3727	4822 051 30103	10k 5% 0.062W
3728	4822 051 30333	33k 5% 0.062W
3729	4822 051 30683	68k 5% 0.062W
3730	4822 117 10353	150Ω 1% 0.1W
3731	4822 051 20223	22k 5% 0.1W
3732	4822 117 10353	150Ω 1% 0.1W
3733	4822 051 20223	22k 5% 0.1W
3734	4822 117 11503	220Ω 1% 0.1W
3735	4822 117 11503	220Ω 1% 0.1W
3737	4822 051 30683	68k 5% 0.062W
3738	4822 051 20471	470Ω 5% 0.1W
3739	4822 051 20471	470Ω 5% 0.1W
3740	4822 117 12902	8k2 1% 0.063W 0603
3741	4822 117 12902	8k2 1% 0.063W 0603
3742	4822 051 30392	3k9 5% 0.063W 0603
3743	4822 051 30101	100Ω 5% 0.062W
3744	4822 051 30271	270Ω 5% 0.062W
3745	4822 051 30102	1k 5% 0.062W
3746	4822 117 12902	8k2 1% 0.063W 0603
3747	4822 117 12902	8k2 1% 0.063W 0603
3748	4822 051 30392	3k9 5% 0.063W 0603
3749	4822 051 30101	100Ω 5% 0.062W
3750	4822 051 30271	270Ω 5% 0.062W
3751	4822 051 30102	1k 5% 0.062W
3752	4822 117 12902	8k2 1% 0.063W 0603
3753	4822 117 12902	8k2 1% 0.063W 0603
3754	4822 051 30392	3k9 5% 0.063W 0603
3755	4822 051 30101	100Ω 5% 0.062W
3756	4822 051 30271	270Ω 5% 0.062W
3757	4822 051 30102	1k 5% 0.062W
3758	4822 051 30472	4k7 5% 0.062W
3759	4822 051 30472	4k7 5% 0.062W
3760	4822 051 30472	4k7 5% 0.062W
3761	4822 117 10837	100k 1% 0.1W
3762	4822 051 20223	22k 5% 0.1W
3763	4822 051 20472	4k7 5% 0.1W
3764	4822 117 11449	2k2 5% 0.1W 0805
3766	4822 051 20561	560Ω 5% 0.1W
3769	4822 051 20561	560Ω 5% 0.1W
3784	4822 051 10102	1k 2% 0.25W
3785	4822 051 10102	1k 2% 0.25W
3786	4822 051 30332	3k3 5% 0.062W
3787	4822 051 30682	6k8 5% 0.062W
3788	4822 051 30332	3k3 5% 0.062W
3789	4822 051 30682	6k8 5% 0.062W
3790	4822 051 20121	120Ω 5% 0.1W
3791	4822 051 30102	1k 5% 0.062W
3792	4822 051 30393	39k 5% 0.062W
3793	4822 051 30103	10k 5% 0.062W
3795	4822 051 30223	22k 5% 0.062W
3796	4822 051 20121	120Ω 5% 0.1W
3799	4822 051 20223	22k 5% 0.1W
3800	4822 117 11927	75Ω 1% 0.1W
3801	4822 117 11927	75Ω 1% 0.1W
3803	4822 117 11151	1Ω 5%
3804	4822 051 20105	1M 5% 0.1W
3805	4822 117 10833	10k 1% 0.1W
3807	4822 051 30101	100Ω 5% 0.062W
3808	4822 051 30103	10k 5% 0.062W
3809	4822 051 30101	100Ω 5% 0.062W
3810	4822 117 11373	100Ω 1% 0805
3811	4822 051 30101	100Ω 5% 0.062W
3812	4822 117 11373	100Ω 1% 0805
3813	4822 051 30101	100Ω 5% 0.062W
3814	4822 117 11373	100Ω 1% 0805
3815	4822 117 11373	100Ω 1% 0805
3816	4822 051 30103	10k 5% 0.062W
3817	4822 051 30103	10k 5% 0.062W
3818	4822 051 30103	10k 5% 0.062W
3819	4822 051 30103	10k 5% 0.062W
3820	4822 051 30103	10k 5% 0.062W
3821	4822 051 30103	10k 5% 0.062W
3822	4822 117 12984	3Ω3 5% 0.125W 1206
3823	4822 117 12984	3Ω3 5% 0.125W 1206
3824	4822 117 11148	56k 1% 0.1W
3825	4822 051 20334	330k 5% 0.1W
3826	4822 051 20334	330k 5% 0.1W
3827	4822 117 11927	75Ω 1% 0.1W
3828	4822 051 30562	5k6 5% 0.063W 0603
3829	4822 051 30562	5k6 5% 0.063W 0603
3830	4822 051 30123	12k 5% 0.062W
3831	4822 051 30123	12k 5% 0.062W
3834	4822 051 30151	150Ω 5% 0.062W
3835	4822 051 20333	33k 5% 0.1W
3836	3198 021 52240	220k 5% 0805
3837	4822 117 11373	100Ω 1% 0805
3838	4822 117 12984	3Ω3 5% 0.125W 1206
3839	4822 051 30103	10k 5% 0.062W
3840	4822 051 30103	10k 5% 0.062W
3841	4822 051 30103	10k 5% 0.062W
3842	4822 051 30103	10k 5% 0.062W
3843	4822 051 30103	10k 5% 0.062W
3844	4822 117 10833	10k 1% 0.1W
3848	4822 051 20105	1M 5% 0.1W
3849	4822 051 30102	1k 5% 0.062W
3850	4822 117 10833	10k 1% 0.1W
3851	4822 117 12984	3Ω3 5% 0.125W 1206
3852	4822 117 13572	22Ω 5% 1206
3854	4822 117 10833	10k 1% 0.1W
3855	4822 117 12984	3Ω3 5% 0.125W 1206
3856	4822 117 13572	22Ω 5% 1206
3857	4822 117 11373	100Ω 1% 0805
3858	4822 051 30103	10k 5% 0.062W
3859	4822 051 30103	10k 5% 0.062W
3861	4822 117 10833	10k 1% 0.1W
3863	4822 117 10833	10k 1% 0.1W
3864	4822 117 11373	100Ω 1% 0805
3865	4822 051 30103	10k 5% 0.062W
3866	4822 117 10833	10k 1% 0.1W
3868	4822 117 11373	100Ω 1% 0805
3869	4822 117 10833	10k 1% 0.1W
3870	4822 117 11373	100Ω 1% 0805
3871	4822 117 10833	10k 1% 0.1W
3872	4822 117 11373	100Ω 1% 0805
3873	4822 117 10833	10k 1% 0.1W
3874	4822 117 11373	100Ω 1% 0805
3875	4822 117 10833	10k 1% 0.1W
3876	4822 117 12984	3Ω3 5% 0.125W 1206
3877	4822 117 12984	3Ω3 5% 0.125W 1206
3878	4822 117 10837	100k 1% 0.1W
3879	4822 051 20684	680k 5% 0.1W
3880	4822 117 10837	100k 1% 0.1W
3881	4822 051 20105	1M 5% 0.1W
3882	4822 117 11373	100Ω 1% 0805
3883	4822 117 10833	10k 1% 0.1W
3884	4822 117 11373	100Ω 1% 0805
3885	4822 117 10833	10k 1% 0.1W
3886	4822 051 30101	100Ω 5% 0.062W
3888	4822 051 30103	10k 5% 0.062W
3889	4822 117 11373	100Ω 1% 0805
3890	4822 051 30101	100Ω 5% 0.062W
3891	4822 051 20472	4k7 5% 0.1W
3892	4822 051 30101	100Ω 5% 0.062W
3893	4822 051 30101	100Ω 5% 0.062W
3894	4822 051 30101	100Ω 5% 0.062W
4xxx	4822 051 10008	Jumper 1206
4xxx	4822 051 20008	Jumper 0805

∿

5703	4822 157 11876	6.8µH 10% 0805
5704	4822 157 11876	6.8µH 10% 0805
5801	4822 157 71411	3.3µH 10%

⊳|

6525	4822 130 11423	PLVA2656A
6600	4822 130 83757	MCL4148
6637	4822 130 83757	MCL4148
6638	4822 130 83757	MCL4148
6708	9322 129 38685	BZM55-C6V8
6709	9322 129 38685	BZM55-C6V8
6710	9322 129 39685	BZM55-C8V2
6715	9322 129 40685	BZM55-C10
6716	9322 129 40685	BZM55-C10
6717	9322 129 40685	BZM55-C10
6718	9322 129 40685	BZM55-C10
6719	9322 129 40685	BZM55-C10
6720	9322 129 40685	BZM55-C10
6721	9322 129 40685	BZM55-C10
6722	9322 129 40685	BZM55-C10
6723	9322 129 40685	BZM55-C10
6724	9322 129 40685	BZM55-C10
6725	9322 129 40685	BZM55-C10
6726	9322 129 40685	BZM55-C10
6730	9322 129 40685	BZM55-C10
6731	9322 129 40685	BZM55-C10
6732	9322 129 40685	BZM55-C10
6733	9322 129 40685	BZM55-C10
6734	4822 130 11423	PLVA2656A
6801	4822 209 16978	LF33CV

⊗ ▭

7505	4822 209 30095	LM833D
7510	4822 130 60511	BC847B
7512	4822 130 60511	BC847B
7540	9322 127 49668	TDA7438D
7541	4822 209 30095	LM833D
7543	4822 209 30095	LM833D
7544	4822 209 30095	LM833D
7565	4822 209 30095	LM833D
7570	9322 127 49668	TDA7438D
7595	4822 209 30095	LM833D
7600	9322 127 49668	TDA7438D
7601	4822 130 60511	BC847B
7602	4822 130 60511	BC847B
7603	4822 130 60511	BC847B
7604	4822 130 60373	BC856B
7605	4822 130 60511	BC847B
7610	4822 130 60511	BC847B
7611	4822 130 60511	BC847B
7625	4822 209 30095	LM833D
7630	5322 209 11102	HEF4052BT
7635	4822 209 30095	LM833D
7665	5322 209 11102	HEF4052BT
7667	4822 130 60511	BC847B
7675	4822 130 60511	BC847B
7679	4822 209 30095	LM833D
7685	5322 209 11102	HEF4052BT
7690	4822 209 13252	PCF8574TS/F3
7695	5322 209 11102	HEF4052BT
7696	4822 130 60511	BC847B
7705	5322 209 81856	LM7912CT
7706	4822 209 81726	MC7812CT
7707	4822 130 60511	BC847B
7708	4822 130 60511	BC847B
7709	4822 130 60511	BC847B
7710	4822 130 60511	BC847B
7712	4822 130 60511	BC847B
7713	4822 130 60511	BC847B
7740	4822 209 30095	LM833D
7780	4822 209 30095	LM833D
7781	4822 130 60373	BC856B
7800	9352 317 00118	74LVC125AD
7801	9352 629 51557	SAA2505H/M1 (PHSE)
7802	4822 209 14863	LC8904Q
7804	4822 209 30095	LM833D
7805	4822 209 17423	UAD1328T
7806	9352 617 90118	UDA1344TS
7807	4822 130 60511	BC847B

Side I/O Panel [O]

Various

0044	3104 304 23481	Bracket side I/O FL11
1326	4822 267 10975	3P male
1327	4822 267 31014	Socket headphone 3.5mm
1328	2422 026 05133	Socket SVHS
1333	2422 025 12485	11P male
1344	4822 267 10735	3P male
1346	2422 025 16382	03P male black
8333	4822 320 12505	Cable 11P 820mM
8344	3104 301 09451	Cable 3P 560mm white
8346	3104 311 00131	Cable 3P 560mm black

⊣⊢

2804	5322 122 32531	100pF 5% 50V
2805	5322 122 32531	100pF 5% 50V
2807	4822 126 14076	220nF 20-80% 25V
2810	4822 126 12105	33nF 5% 50V
2811	4822 124 40207	100µF 20% 25V
2813	4822 124 22652	2.2µF 20% 50V
2832	4822 122 33177	10nF 20% 50V
2834	4822 122 33177	10nF 20% 50V

▭

3801	4822 117 11927	75Ω 1% 0.1W
3803	4822 050 11002	1k 1% 0.4W
3804	4822 050 11002	1k 1% 0.4W
3808	4822 051 20008	Jumper 0805
3809	4822 051 20008	Jumper 0805
3810	4822 051 20684	680k 5% 0.1W
3811	4822 051 20393	39k 5% 0.1W
3812	4822 051 20154	150k 5% 0.1W
3813	4822 051 20392	3k9 5% 0.1W
3814	4822 117 11449	2k2 5% 0.1W 0805
3815	4822 051 20399	39Ω 5% 0.1W
3816	4822 051 20399	39Ω 5% 0.1W
3826	4822 116 52206	120Ω 5% 0.5W
3827	4822 116 52206	120Ω 5% 0.5W
3828	4822 116 52206	120Ω 5% 0.5W
3829	4822 116 52206	120Ω 5% 0.5W
3830	4822 050 21003	10k 1% 0.6W
3842	4822 050 21003	10k 1% 0.6W
3845	4822 051 20472	4k7 5% 0.1W
3846	4822 117 10833	10k 1% 0.1W
3847	4822 117 10833	10k 1% 0.1W
3848	4822 051 20562	5k6 5% 0.1W 0805
3849	4822 051 20332	3k3 5% 0.1W
4xxx	4822 051 10008	Jumper 1206
4xxx	4822 051 20008	Jumper 0805

∿

5800	4822 157 11228	100µH 5%

⊳|

6801	9322 129 38685	BZM55-C6V8
6802	9322 129 38685	BZM55-C6V8
6803	9322 129 40685	BZM55-C10
6804	9322 129 40685	BZM55-C10
6805	9322 129 40685	BZM55-C10
6806	9322 129 40685	BZM55-C10
6807	9322 129 38685	BZM55-C6V8
6808	9322 129 38685	BZM55-C6V8

⊗ ▭

7811	4822 130 60373	BC856B
7812	4822 130 60373	BC856B
7813	4822 130 60511	BC847B

Top Control Panel [P]

Various

0055	3104 307 98241	Top control keypad FL11
0057	3104 304 23431	Topcontrol bottom FL11
0111	3104 304 24851	Topcontrol ESD foil
8345	3104 301 07771	Cable 3P 1200mm white
8345	3104 311 01101	Cable 3P 1000mm

Autoscavem Panel [SC]

Various

0360	4822 267 10967	3P
0361	4822 267 10967	3P
1382	2422 025 17408	9P male

⊣⊢

2006	4822 126 14305	100nF 10% 16V 0603
2008	4822 126 14494	22nF 10% 25V 0603
2010	4822 126 14305	100nF 10% 16V 0603
2012	4822 126 14494	22nF 10% 25V 0603
2014	4822 126 14494	22nF 10% 25V 0603
2016	3198 016 33380	3.3pF 50V 0603
2020	4822 126 14494	22nF 10% 25V 0603
2022	3198 017 41050	1µF 10V 0603
2024	4822 126 14494	22nF 10% 25V 0603
2026	3198 017 41050	1µF 10V 0603
2028	3198 017 41050	1µF 10V 0603
2038	4822 126 14494	22nF 10% 25V 0603
2040	4822 126 14225	56pF 5% 50V 0603
2200	4822 126 13193	4.7nF 10% 63V
2202	5322 126 11578	1nF 10% 50V 0603
2204	3198 017 41050	1µF 10V 0603
2206	3198 017 41050	1µF 10V 0603
2208	4822 124 41584	100µF 20% 10V
2600	4822 124 80791	470µF 20% 16V

▭

3000	4822 051 30101	100Ω 5% 0.062W
3002	4822 051 30101	100Ω 5% 0.062W
3004	4822 051 30101	100Ω 5% 0.062W
3006	4822 051 30222	2k2 5% 0.062W
3008	4822 051 30222	2k2 5% 0.062W
3010	4822 051 30222	2k2 5% 0.062W
3012	4822 051 30562	5k6 5% 0.063W 0603
3014	4822 051 30272	2k7 5% 0.062W
3016	4822 051 30153	15k 5% 0.062W
3018	4822 117 12903	1k8 1% 0.063W 0603
3020	4822 051 30561	560Ω 5% 0.062W
3022	4822 051 30393	39k 5% 0.062W
3024	4822 051 30123	12k 5% 0.062W
3028	4822 051 30223	22k 5% 0.062W
3030	4822 051 30683	68k 5% 0.062W
3032	4822 051 20182	1k8 5% 0.1W
3034	4822 051 30222	2k2 5% 0.062W
3036	4822 051 30332	3k3 5% 0.062W
3038	4822 051 30561	560Ω 5% 0.062W
3040	4822 117 12925	47k 1% 0.063W 0603
3042	4822 051 30682	6k8 5% 0.062W
3044	4822 051 10102	1k 2% 0.25W
3046	4822 117 12903	1k8 1% 0.063W 0603
3048	4822 117 12903	1k8 1% 0.063W 0603
3050	4822 051 30561	560Ω 5% 0.062W
3052	4822 051 30561	560Ω 5% 0.062W
3054	4822 051 30222	2k2 5% 0.062W
3056	4822 051 30222	2k2 5% 0.062W
3058	4822 051 30681	680Ω 5% 0.062W
3060	4822 051 30681	680Ω 5% 0.062W
3062	4822 051 30222	2k2 5% 0.062W
3064	4822 117 12971	15Ω 5% 0.62W 0603
3066	4822 051 30123	12k 5% 0.062W
3068	4822 051 30681	680Ω 5% 0.062W
3070	4822 117 12902	8k2 1% 0.063W 0603
3072	4822 051 30152	1k5 5% 0.062W
3074	4822 051 30101	100Ω 5% 0.062W
3076	4822 117 11817	1k2 1% 1/16W
3078	4822 051 30102	1k 5% 0.062W
3080	4822 117 12925	47k 1% 0.063W 0603
3082	4822 051 30682	6k8 5% 0.062W
3084	4822 051 30102	1k 5% 0.062W
3086	4822 051 30222	2k2 5% 0.062W
3088	4822 051 30102	1k 5% 0.062W
3090	4822 051 30222	2k2 5% 0.062W
3092	4822 051 30393	39k 5% 0.062W
3094	4822 051 30223	22k 5% 0.062W
3096	4822 117 11449	2k2 5% 0.1W 0805
3102	4822 051 30152	1k5 5% 0.062W
3106	4822 051 30102	1k 5% 0.062W
3108	4822 117 12925	47k 1% 0.063W 0603
3110	4822 051 30472	4k7 5% 0.062W
3112	4822 051 30392	3k9 5% 0.063W 0603
3114	4822 051 30181	180Ω 5% 0.062W
3116	4822 051 30102	1k 5% 0.062W
3118	4822 051 30333	33k 5% 0.062W
3120	4822 051 30333	33k 5% 0.062W
3200	4822 051 30152	1k5 5% 0.062W
3202	4822 051 30271	270Ω 5% 0.062W
3204	4822 117 12925	47k 1% 0.063W 0603
3206	4822 051 30682	6k8 5% 0.062W
3208	4822 117 12903	1k8 1% 0.063W 0603
3210	4822 051 30681	680Ω 5% 0.062W
3212	4822 051 30123	12k 5% 0.062W
3214	4822 051 30474	470k 5% 0.062W
3216	4822 117 12925	47k 1% 0.063W 0603
3218	4822 051 30153	15k 5% 0.062W
3220	4822 051 30153	15k 5% 0.062W

3222	4822 051 30682	6k8 5% 0.062W
3224	4822 117 11817	1k2 1% 1/16W
3226	4822 051 30152	1k5 5% 0.062W
3228	4822 051 30101	100Ω 5% 0.062W
3230	4822 051 30103	10k 5% 0.062W
3232	4822 051 30153	15k 5% 0.062W
3234	4822 117 12968	820Ω 5% 0.62W
3236	4822 051 30222	2k2 5% 0.062W
3238	4822 117 12139	22Ω 5% 0.062W
3240	4822 051 30472	4k7 5% 0.062W
3242	4822 051 30689	68Ω 5% 0.063W 0603
3244	4822 117 13632	100k 1% 0.62W 0603
3500	4822 051 30101	100Ω 5% 0.062W
3502	4822 051 30101	100Ω 5% 0.062W
3600	4822 117 11151	1Ω 5%

∿

5600	4822 157 11778	5μH 6 10%

→|

6000	5322 130 80119	BBY40

⊗ ▭

7000	4822 130 60373	BC856B
7002	4822 130 60373	BC856B
7004	4822 130 60373	BC856B
7006	5322 130 42718	BFS20
7008	4822 130 60383	BF824
7010	5322 130 42718	BFS20
7012	5322 130 42718	BFS20
7014	4822 130 60383	BF824
7016	5322 130 42718	BFS20
7018	5322 130 42718	BFS20
7020	4822 130 60383	BF824
7022	5322 130 42718	BFS20
7024	5322 130 42718	BFS20
7026	5322 130 42718	BFS20
7028	5322 130 42718	BFS20
7030	5322 130 42718	BFS20
7032	5322 130 42718	BFS20
7038	5322 130 42718	BFS20
7040	5322 130 42718	BFS20
7042	4822 130 60383	BF824
7200	4822 130 60511	BC847B
7202	4822 130 60373	BC856B
7204	4822 130 60373	BC856B
7206	5322 130 42718	BFS20
7208	4822 130 60511	BC847B
7210	5322 130 42718	BFS20
7212	4822 130 60511	BC847B
7500	5322 209 90559	TDA8444T/N4

Wireless Transmitter [R]

Various

0320	4304 078 89100	Transmitter 433MHz
0320	4304 078 89110	Transmitter 864MHz

⊣⊢

2100	4822 126 14043	1μF 20% 16V
2101	4822 126 14043	1μF 20% 16V
2102	4822 126 13222	390pF 2% 63V
2103	4822 126 13222	390pF 2% 63V
2104	4822 126 13222	390pF 2% 63V
2105	4822 126 13222	390pF 2% 63V
2106	4822 126 13222	390pF 2% 63V
2107	4822 126 13222	390pF 2% 63V
2108	4822 126 13222	390pF 2% 63V
2109	4822 126 13222	390pF 2% 63V
2110	4822 126 10326	180pF 5% 63V
2111	4822 126 10326	180pF 5% 63V
2112	4822 126 10326	180pF 5% 63V
2113	4822 126 10326	180pF 5% 63V
2114	4822 124 22652	2.2μF 20% 50V
2115	4822 124 22652	2.2μF 20% 50V
2116	5322 122 32268	470pF 10% 50V
2117	5322 122 32268	470pF 10% 50V
2118	5322 126 10223	4.7nF 10% 63V
2119	5322 126 10223	4.7nF 10% 63V
2120	4822 124 40248	10μF 20% 63V
2121	4822 124 40248	10μF 20% 63V
2122	4822 121 51319	1μF 10% 63V
2123	4822 121 51319	1μF 10% 63V
2124	4822 124 22652	2.2μF 20% 50V
2125	4822 124 22652	2.2μF 20% 50V
2126	5322 122 32654	22nF 10% 63V
2127	5322 122 32654	22nF 10% 63V
2128	4822 124 22652	2.2μF 20% 50V
2129	4822 124 22652	2.2μF 20% 50V
2130	4822 124 22652	2.2μF 20% 50V
2131	4822 124 22652	2.2μF 20% 50V
2132	4822 126 13692	47pF 1% 63V
2133	4822 126 13692	47pF 1% 63V
2134	4822 124 40248	10μF 20% 63V
2135	4822 124 40248	10μF 20% 63V
2136	5322 122 32268	470pF 10% 50V
2137	4822 124 81151	22μF 50V
2138	5322 122 31647	1nF 10% 63V
2139	5322 122 32268	470pF 10% 50V
2141	4822 126 13482	470nF 80/20% 16V
2142	4822 124 81151	22μF 50V
2143	4822 122 32535	680pF 10% 63V
2144	4822 126 13695	82pF 1% 63V
2147	5322 122 32654	22nF 10% 63V
2150	4822 126 13473	220nF 80-20% 50V
2151	4822 126 13692	47pF 1% 63V
2152	4822 126 13692	47pF 1% 63V
2153	4822 126 14585	100nF 10% 50V
2154	4822 126 14585	100nF 10% 50V
2155	4822 126 14585	100nF 10% 50V
2156	4822 124 40196	220μF 20% 16V
2157	4822 124 40196	220μF 20% 16V
2158	4822 124 40207	100μF 20% 25V
2162	5322 122 32654	22nF 10% 63V
2163	4822 126 13473	220nF 80-20% 50V
2164	4822 126 14585	100nF 10% 50V
2165	4822 126 14585	100nF 10% 50V
2166	5322 122 32654	22nF 10% 63V
2167	5322 122 32448	10pF 5% 63V
2168	4822 126 13482	470nF 80/20% 16V
2169	4822 122 32535	680pF 10% 63V
2170	4822 122 32535	680pF 10% 63V
2173	4822 122 33177	10nF 20% 50V
2174	4822 126 13473	220nF 80-20% 50V
2175	4822 122 33575	220pF 5% 63V
2176	4822 122 33575	220pF 5% 63V
2178	5322 122 32654	22nF 10% 63V
2179	5322 122 32654	22nF 10% 63V
2180	5322 122 32654	22nF 10% 63V
2181	4822 126 13692	47pF 1% 63V
2182	4822 126 13692	47pF 1% 63V
2183	5322 122 32654	22nF 10% 63V
2185	4822 126 13692	47pF 1% 63V
2186	4822 126 13473	220nF 80-20% 50V
2188	4822 126 13692	47pF 1% 63V
2189	5322 122 31863	330pF 5% 63V

−▭−

3100	4822 117 10837	100k 1% 0.1W
3101	4822 117 10837	100k 1% 0.1W
3102	4822 051 20392	3k9 5% 0.1W
3103	4822 051 20392	3k9 5% 0.1W
3104	4822 050 21303	13k 1% 0.6W
3105	4822 050 21303	13k 1% 0.6W
3106	4822 050 21303	13k 1% 0.6W
3107	4822 050 21303	13k 1% 0.6W
3108	4822 050 26492	6k49 1% 0.6W
3109	4822 050 26492	6k49 1% 0.6W
3110	4822 051 20184	180k 5% 0.1W
3111	4822 051 20184	180k 5% 0.1W
3112	4822 051 20223	22k 5% 0.1W
3113	4822 051 20223	22k 5% 0.1W
3114	4822 050 23303	33k 1% 0.6W
3115	4822 051 20333	33k 5% 0.1W
3116	4822 051 20333	33k 5% 0.1W
3117	4822 051 20333	33k 5% 0.1W
3118	4822 051 20273	27k 5% 0.1W
3119	4822 051 20273	27k 5% 0.1W
3120	4822 051 20273	27k 5% 0.1W
3121	4822 051 20273	27k 5% 0.1W
3122	4822 117 10834	47k 1% 0.1W
3123	4822 117 10834	47k 1% 0.1W
3124	4822 116 83933	15k 1% 0.1W
3125	4822 116 83933	15k 1% 0.1W
3126	4822 051 10102	1k 2% 0.25W
3127	4822 051 10102	1k 2% 0.25W
3128	4822 051 20332	3k3 5% 0.1W
3129	4822 051 20332	3k3 5% 0.1W
3130	4822 117 10833	10k 1% 0.1W
3131	4822 117 10833	10k 1% 0.1W
3132	4822 051 20683	68k 5% 0.1W
3133	4822 051 20683	68k 5% 0.1W
3134	4822 117 10965	18k 1% 0.1W
3135	4822 117 10965	18k 1% 0.1W
3136	4822 117 10965	18k 1% 0.1W
3137	4822 117 10965	18k 1% 0.1W
3138	4822 117 11507	6k8 1% 0.1W
3139	4822 117 11507	6k8 1% 0.1W
3140	4822 051 10102	1k 2% 0.25W
3141	4822 051 10102	1k 2% 0.25W
3142	4822 051 20474	470k 5% 0.1W
3143	4822 117 10837	100k 1% 0.1W
3144	4822 051 20333	33k 5% 0.1W
3145	4822 116 83933	15k 1% 0.1W
3150	4822 051 20333	33k 5% 0.1W
3151	4822 116 83933	15k 1% 0.1W
3152	4822 116 83933	15k 1% 0.1W
3153	4822 051 20333	33k 5% 0.1W
3154	4822 051 20822	8k2 5% 0.1W
3155	4822 051 20392	3k9 5% 0.1W
3156	4822 051 20822	8k2 5% 0.1W
3157	4822 100 11676	10k 30% 0.2W
3158	4822 051 20471	470Ω 5% 0.1W
3159	4822 051 20471	470Ω 5% 0.1W
3160	4822 116 52175	100Ω 5% 0.5W
3161	4822 116 52175	100Ω 5% 0.5W
3162	4822 051 20008	jumper 0805
3165	4822 051 20008	jumper 0805
3168	4822 051 20332	3k3 5% 0.1W
3169	4822 117 10834	47k 1% 0.1W
3170	4822 051 20472	4k7 5% 0.1W
3171	4822 051 20391	390Ω 5% 0.1W
3172	4822 051 10102	1k 2% 0.25W
3175	4822 117 10837	100k 1% 0.1W
3176	4822 051 10102	1k 2% 0.25W
3177	4822 051 20223	22k 5% 0.1W
3180	4822 117 13579	220k 1% 0.1W
3181	4822 117 13579	220k 1% 0.1W
3182	4822 051 20474	470k 5% 0.1W
3184	4822 051 10102	1k 2% 0.25W
3185	4822 117 10833	10k 1% 0.1W
3188	4822 051 20472	4k7 5% 0.1W
3189	4822 117 10837	100k 1% 0.1W
3190	4822 051 20472	4k7 5% 0.1W
3191	4822 051 20223	22k 5% 0.1W
3193	4822 117 10834	47k 1% 0.1W
3194	4822 051 20008	Jumper 0805
3196	4822 051 20472	4k7 5% 0.1W
3197	4822 051 20472	4k7 5% 0.1W
3198	4822 051 20008	
3199	4822 051 20561	560Ω 5% 0.1W
3199	4822 051 20562	5k6 5% 0.1W
3200	4822 051 20472	4k7 5% 0.1W
3201	4822 051 20471	470Ω 5% 0.1W
3202	4822 051 20471	470Ω 5% 0.1W
3203	4822 051 10102	1k 2% 0.25W
3204	4822 051 10102	1k 2% 0.25W
3205	4822 051 10102	1k 2% 0.25W
3206	4822 051 20471	470Ω 5% 0.1W
3207	4822 117 10833	10k 1% 0.1W
4xxx	4822 051 10008	jumper 1206
4xxx	4822 051 20008	jumper 0805

∿

5101	2422 543 01048	Crystal 12.8MHz
5102	2422 535 94915	33nH 5%
5105	2422 535 94828	27nH 5%
5107	4822 157 71206	Bead 100MHz 600Ω

→|

6101	4822 130 34121	BAX18
6102	4822 130 61219	BZX79-B10
6106	4822 130 11423	PLVA2656A
6107	4822 130 83757	BAS216

⊗ ▭

7101	9322 137 78682	NJM2060D
7102	9338 436 90602	SA572N
7103	4822 209 70157	NJM4560DD
7105	3104 218 80310	μP S83C751-4N24
7106	4822 209 17338	L78L08ACZ
7108	4822 130 60373	BC856B
7109	4822 209 83357	NJM4560M
7110	4822 130 60511	BC847B
7112	9337 140 10653	74HC4060D
7113	4822 209 60792	74HC4053D
7114	4822 130 60511	BC847B
7115	4822 209 83357	NJM4560M
7116	4822 130 60511	BC847B
7117	4822 130 60373	BC856B
7118	4822 130 60511	BC847B
7119	4822 130 60511	BC847B

Wireless Receiver [U]

Various

0438	3104 217 06200	Receiver panel 433MHz
0438	3104 217 06050	Receiver panel 864MHz
1701	4822 277 11671	Slide switch 1P 7pos

⊣⊢

2701	5322 122 32654	22nF 10% 63V
2702	5322 122 32654	22nF 10% 63V
2703	4822 126 13751	47nF 10% 63V
2704	4822 126 13473	220nF 80-20% 50V
2705	4822 126 14585	100nF 10% 50V
2706	5322 122 32654	22nF 10% 63V
2707	4822 126 14585	100nF 10% 50V
2708	4822 124 40769	4.7μF 20% 100V
2709	5322 122 32531	100pF 5% 50V
2710	4822 126 13473	220nF 80-20% 50V
2711	4822 121 41854	150nF 5% 63V
2712	4822 126 13188	15nF 5% 63V
2713	2222 464 90014	180pF 2% 630V
2714	4822 124 41751	47μF 20% 50V
2715	4822 124 40769	4.7μF 20% 100V
2716	4822 126 13473	220nF 80-20% 50V
2717	5322 122 32654	22nF 10% 63V
2718	4822 126 13473	220nF 80-20% 50V
2719	4822 122 33216	270pF 5% 50V
2720	4822 122 33216	270pF 5% 50V
2721	4822 126 13473	220nF 80-20% 50V
2722	4822 126 14585	100nF 10% 50V
2723	4822 124 22652	2.2μF 20% 50V
2731	4822 124 22652	2.2μF 20% 50V
2741	4822 124 22652	2.2μF 20% 50V
2750	4822 126 13473	220nF 80-20% 50V
2751	5322 122 32531	100pF 5% 50V
2752	4822 126 13473	220nF 80-20% 50V
2753	5322 122 32654	22nF 10% 63V
2754	4822 124 40769	4.7μF 20% 100V
2755	5322 122 32654	22nF 10% 63V
2762	4822 126 13692	47pF 1% 63V
2770	4822 124 40769	4.7μF 20% 100V
2771	5322 122 32654	22nF 10% 63V
2772	4822 124 22652	2.2μF 20% 50V
2773	4822 124 22652	2.2μF 20% 50V
2774	4822 121 51319	1μF 10% 63V
2775	5322 122 32654	22nF 10% 63V
2776	4822 124 22652	2.2μF 20% 50V
2777	4822 124 22652	2.2μF 20% 50V
2778	4822 121 51319	1μF 10% 63V
2779	5322 122 32654	22nF 10% 63V
2780	4822 124 40248	10μF 20% 63V
2781	4822 124 40769	4.7μF 20% 100V
2782	5322 126 10223	4.7nF 10% 63V
2783	4822 124 22652	2.2μF 20% 50V
2786	4822 124 40248	10μF 20% 63V
2787	4822 124 40769	4.7μF 20% 100V
2788	5322 126 10223	4.7nF 10% 63V
2789	4822 124 22652	2.2μF 20% 50V
2790	4822 126 14585	100nF 10% 50V
2792	4822 122 33575	220pF 5% 63V
2793	4822 122 33575	220pF 5% 63V
2794	4822 122 33575	220pF 5% 63V

–▭–

3701	4822 051 20471	470Ω 5% 0.1W
3702	4822 117 13577	330Ω 1% 1.25W
3703	4822 117 11449	2k2 1% 0.1W
3704	4822 051 20471	470Ω 5% 0.1W
3705	4822 051 20101	100Ω 5% 0.1W
3706	4822 051 20332	3k3 5% 0.1W
3707	4822 117 13577	330Ω 1% 1.25W
3708	4822 051 20478	4Ω7 5% 0.1W
3709	4822 117 11448	180Ω 1% 0.1W
3710	4822 051 20391	390Ω 5% 0.1W
3711	4822 100 12159	100k 30%
3712	4822 117 10833	10k 1% 0.1W
3713	4822 117 10833	10k 1% 0.1W
3714	4822 051 20223	22k 5% 0.1W
3715	4822 117 11148	56k 1% 0.1W
3716	4822 051 20332	3k3 5% 0.1W
3717	4822 116 52264	27k 5% 0.5W
3718	4822 116 52264	27k 5% 0.5W
3719	4822 117 10837	100k 1% 0.1W
3720	4822 117 10837	100k 1% 0.1W
3721	4822 051 20273	27k 5% 0.1W
3722	4822 051 20472	4k7 5% 0.1W
3723	4822 051 20273	27k 5% 0.1W
3723	4822 117 10965	18k 1% 0.1W
3724	4822 051 20393	39k 5% 0.1W
3724	4822 117 10837	100k 1% 0.1W
3726	4822 117 11449	2k2 1% 0.1W
3727	4822 051 20562	5k6 5% 0.1W
3728	4822 051 20562	5k6 5% 0.1W
3729	4822 051 20474	470k 5% 0.1W
3730	4822 051 20223	22k 5% 0.1W
3731	4822 051 20683	68k 5% 0.1W
3732	4822 051 20562	5k6 5% 0.1W
3733	4822 051 20392	3k9 5% 0.1W
3734	4822 051 20561	560Ω 5% 0.1W
3735	4822 051 20391	390Ω 5% 0.1W
3736	2120 363 90145	22K 30%
3737	4822 051 20472	4k7 5% 0.1W
3738	4822 051 20472	4k7 5% 0.1W
3739	4822 117 11449	2k2 1% 0.1W
3740	4822 051 20223	22k 5% 0.1W
3741	4822 117 11449	2k2 1% 0.1W
3742	4822 051 20562	5k6 5% 0.1W
3743	4822 051 20392	3k9 5% 0.1W
3744	4822 051 20561	560Ω 5% 0.1W
3745	4822 051 20391	390Ω 5% 0.1W
3746	4822 051 20472	4k7 5% 0.1W
3747	4822 051 20101	100Ω 5% 0.1W
3748	4822 117 11449	2k2 1% 0.1W
3749	4822 117 11449	2k2 1% 0.1W
3750	4822 051 10102	1k 2% 0.25W
3751	4822 051 20472	4k7 5% 0.1W
3752	4822 051 20101	100Ω 5% 0.1W
3753	4822 117 10833	10k 1% 0.1W
3754	4822 117 10837	100k 1% 0.1W
3755	4822 117 10833	10k 1% 0.1W
3756	4822 117 10833	10k 1% 0.1W
3757	4822 117 10833	10k 1% 0.1W
3758	4822 117 10834	47k 1% 0.1W
3759	4822 117 10834	47k 1% 0.1W
3760	4822 051 20472	4k7 5% 0.1W
3761	4822 051 20101	100Ω 5% 0.1W
3762	4822 117 10833	10k 1% 0.1W
3763	4822 117 10833	10k 1% 0.1W
3771	4822 117 10833	10k 1% 0.1W
3772	4822 051 20332	3k3 5% 0.1W
3775	4822 117 10833	10k 1% 0.1W
3776	4822 051 20332	3k3 5% 0.1W
3778	4822 051 10102	1k 2% 0.25W
3779	4822 051 10102	1k 2% 0.25W
3780	4822 117 10837	100k 1% 0.1W
3781	4822 117 10965	18k 1% 0.1W
3782	4822 117 10834	47k 1% 0.1W
3783	4822 117 11449	2k2 1% 0.1W
3786	4822 117 10837	100k 1% 0.1W
3787	4822 117 10965	18k 1% 0.1W
3788	4822 117 10834	47k 1% 0.1W
3789	4822 117 11449	2k2 1% 0.1W
3792	4822 117 10837	100k 1% 0.1W
3793	4822 117 10837	100k 1% 0.1W
3794	4822 051 20472	4k7 5% 0.1W
3795	4822 117 10833	10k 1% 0.1W
3796	4822 051 20561	560Ω 5% 0.1W
3796	4822 051 20562	5k6 5% 0.1W
42xx	4822 051 10008	Jumper 1206
43xx	4822 051 20008	Jumper 0805

⌒⌒⌒

5701	2422 549 43868	Coil var. 10.7MHz
5702	4822 157 11668	Filter MPX 20KHZ
5703	4822 157 11668	Filter MPX 20KHZ
5704	4822 242 72527	Crystal 4 MHz
5705	4822 157 71206	Bead 100MHz 600Ω
5706	4822 242 70665	Filter 10.7M
5707	4822 242 70665	Filter 10.7M
5708	4822 157 11172	68nH 10%

▶|

6701	5322 130 34331	BAV70
6702	4822 130 34233	BZX79-B5V1
6703	4822 130 83757	BAS216
6704	4822 130 30621	1N4148
6705	4822 130 30621	1N4148

⊗ ▭

7702	9350 394 00112	TDA1578A/V6
7703	4822 130 60373	BC856B
7704	4822 130 60511	BC847B
7705	4822 130 60511	BC847B
7706	4822 130 60511	BC847B
7707	5322 130 42718	BFS20
7708	3104 218 80290	μProcessor
7709	9338 436 90602	SA572N
7710	4822 209 70157	NJM4560DD
7711	4822 209 17338	L78L08ACZ
7712	4822 130 41327	BC327-40
7713	4822 130 60511	BC847B
7714	4822 209 15263	L78L06ACZ
7717	4822 130 60511	BC847B
7718	4822 130 60373	BC856B
7719	4822 130 60511	BC847B
7720	4822 130 60511	BC847B

Surround Sound Supply + Amplifier [W1] [W2] [W3] [W4]

Various

0440	4303 308 35230	Amplifier board
0011	4303 308 76220	Led holder LU53-080
0012	9390 288 60112	Spring
0013	3104 214 34571	Power button
1101	4822 267 10748	3P Male
1201	2422 025 14044	3P Male
1202	4822 265 30734	4P
1203	4303 308 99380	2P
1204	3143 008 90671	Mains switch
1205	4822 265 11253	Fuse holder
1206	4822 070 32002	Fuse 2A
1301	2422 025 04849	2P Male
1302	4822 265 10872	2P Male
1303	4822 265 30735	5P Male
1304	4822 267 10735	3P Male
1305	4822 265 41392	7P Male
1306	4822 267 31014	Headphone socket
1307	4303 308 94460	Slide switch 2P
1401	4822 265 30735	5P Male
1402	4822 267 10735	3P Male
1403	2422 025 04851	3P Male
1404	4822 267 10565	4P Male
1405	2422 025 10647	1P Male
1406	2422 025 04849	2P Male
1407	2422 025 04849	2P Male
1408	4822 071 52502	Fuse 2.5A
1409	4822 071 52502	Fuse 2.5A
8000	3139 110 30840	Cable 180mm/description>
8002	4303 301 91570	Cable 7P shielded
8003	4303 301 91580	Cable 3P shielded
8004	4303 301 00380	Cable 2P shielded
8005	3139 110 30730	Cable 3P shielded

⊣⊢

2201	4822 126 13838	100nF 80-20% 50V
2202	4822 126 11958	2,2nF 10% 500V
2203	4822 126 13841	1nF 20% 250V
2204	4822 122 33127	2,2nF 10% 63V
2205	5322 121 42498	680nF 5% 63V
2206	3143 018 90900	100pF 10% 1kV
2207	2222 044 36478	4,7μF 20% 400V
2208	2222 336 20105	1μF 20 275V
2209	4822 124 12056	1000μF 20% 35V
2210	4822 124 40196	220μF 20% 16V
2211	4822 126 13838	100nF 80-20% 50V
2301	4822 126 14043	1μF +80-20% 16V
2302	4822 126 14043	1μF +80-20% 16V
2303	4822 126 13751	47nF 10% 63V
2304	4822 126 13751	47nF 10% 63V
2401	4822 124 12056	1000μF 20% 35V
2402	4822 124 11912	220μF 20% 6,3V
2403	4822 124 11912	220μF 20% 6,3V
2404	4822 124 42367	3300μF 20% 35V
2405	4822 124 42367	3300μF 20% 35V
2406	4822 124 40769	4,7μF 20% 100V
2407	4822 124 40207	100μF 20% 25V
2408	4822 124 81151	22μF 50V
2409	4822 122 31947	100nF 20% 63V
2410	4822 122 31947	100nF 20% 63V
2411	4822 122 31947	100nF 20% 63V
2412	4822 122 31947	100nF 20% 63V
2413	4822 122 31947	100nF 20% 63V
2414	4822 122 31947	100nF 20% 63V
2415	4822 126 13473	220nF 80-20% 50V
2416	4822 126 13473	220nF 80-20% 50V
2420	5322 122 32268	470pF 10% 50V
2421	4822 126 13473	220nF 80-20% 50V
2422	4822 126 13473	220nF 80-20% 50V
2426	5322 122 32268	470PF 10% 50V
2427	4822 126 13473	220nF 80-20% 50V
2428	4822 126 13473	220nF 80-20% 50V
2429	5322 122 32531	100pF 5% 50V
2430	5322 122 32531	100pF 5% 50V
2431	4822 126 13473	220nF 80-20% 50V
2432	4822 126 13473	220nF 80-20% 50V

2433	5322 122 32654	22nF 10% 63V
2434	5322 122 32654	22nF 10% 63V
2435	5322 122 32531	100pF 5% 50V
2436	5322 122 32531	100pF 5% 50V
2437	4822 126 13838	100nF 80-20% 50V
2438	4822 126 13838	100nF 80-20% 50V
2439	4822 126 13838	100nF 80-20% 50V
2440	4822 126 13838	100nF 80-20% 50V
2441	4822 126 14043	1μF +80-20% 16V
2442	4822 126 13473	220nF 80-20% 50V
2443	4822 126 13482	470nF 80/20% 16V
2444	4822 126 13691	27pF 1% 63V
2445	4822 126 13691	27pF 1% 63V
2446	4822 126 13473	220nF 80-20% 50V
2447	4822 126 13838	100nF 80-20% 50V
2448	4822 126 13838	100nF 80-20% 50V
2449	4822 126 13838	100nF 80-20% 50V
2450	4822 126 13838	100nF 80-20% 50V
2451	4822 126 13473	220nF 80-20% 50V
2452	5322 122 32531	100pF 5% 50V
2453	5322 122 32531	100pF 5% 50V
2454	5322 122 32531	100pF 5% 50V
2455	5322 122 32531	100pF 5% 50V
2456	4822 122 33127	2,2nF 10% 63V

3201	4822 051 52702	2k7 1% 0,125W
3202	4822 053 21475	4M7 5% 0,5W
3203	4822 053 21225	2M2 5% 0,5W
3204	4822 051 52702	2k7 1% 0,125W
3205	4822 051 20121	120Ω 5% 0,1W
3206	4822 117 11454	820Ω 1% 0,1W
3207	4822 053 20106	10M 5% 0,25W
3208	4822 116 83883	470Ω 5% 0,5W
3209	4822 117 11449	2k2 1% 0,1W
3210	4822 117 11449	2k2 1% 0,1W
3211	4822 117 10833	10k 1% 0,1W
3212	4822 051 10472	4k7 2% 0,25W
3214	4822 117 10833	10k 1% 0,1W
3215	4822 116 52195	47Ω 5% 0,5W
3216	4822 116 52182	15Ω 5% 0,5W
3217	4822 116 52182	15Ω 5% 0,5W
3219	4822 052 10108	1Ω 5% 0,33W
3220	4822 052 10108	1Ω 5% 0,33W
3221	4822 052 10109	10Ω 5% 0,33W
3222	4822 052 10471	470Ω 5% 0,33W
3223	4822 051 20471	470Ω 5% 0,1W
3301	4822 116 83933	15k 1% 0,1W
3302	4822 116 83933	15k 1% 0,1W
3303	4822 117 11149	82k 1% 0,1W
3304	4822 117 11149	82k 1% 0,1W
3305	4822 051 20008	Jumper 0805
3306	4822 051 20008	Jumper 0805
3307	4822 051 20223	22k 5% 0,1W
3308	4822 051 20223	22k 5% 0,1W
3401	4822 050 23301	330Ω 1% 0,6W
3402	4822 050 23301	330Ω 1% 0,6W
3403	4822 050 23301	330Ω 1% 0,6W
3404	4822 050 23301	330Ω 1% 0,6W
3405	4822 117 11507	6k8 1% 0,1W
3406	4822 051 20822	8k2 5% 0,1W
3407	4822 051 20472	4k7 5% 0,1W
3409	4822 051 20008	Jmper 0805
3410	4822 117 10833	10k 1% 0,1W
3411	4822 117 11507	6k8 1% 0,1W
3412	4822 051 20822	8k2 5% 0,1W
3413	4822 051 20472	4k7 5% 0,1W
3415	4822 051 20008	Jumper 0805
3416	4822 117 10833	10k 1% 0,1W
3419	4822 116 83961	6k8 5%
3420	4822 117 10834	47k 1% 0,1W
3421	4822 117 10834	47k 1% 0,1W
3422	4822 051 20472	4k7 5% 0,1W
3423	4822 117 10834	47k 1% 0,1W
3424	4822 117 13579	220k 1% 0.1W
3425	4822 050 21003	10k 1% 0,6W
3426	4822 051 20334	330k 5% 0,1W
3427	4822 117 10837	100k 1% 0.1W
3428	4822 117 10837	100k 1% 0.1W
3429	4822 117 10833	10k 1% 0,1W
3430	4822 117 10833	10k 1% 0,1W
3431	4822 117 10833	10k 1% 0,1W
3432	4822 051 20335	3M3 5% 0,1W
3433	4822 051 20474	470k 5% 0,1W
3434	4822 117 11149	82k 1% 0,1W
3435	4822 051 20474	470k 5% 0,1W
3436	4822 051 20223	22k 5% 0,1W
3437	4822 051 20472	4k7 5% 0,1W
3438	4822 117 10833	10k 1% 0,1W
3439	4822 116 52195	47Ω 5% 0,5W
3440	4822 117 10834	47k 1% 0,1W
3441	4822 117 10834	47k 1% 0,1W
3442	4822 117 11449	2k2 1% 0,1W
3443	4822 051 20472	4k7 5% 0,1W
3444	4822 051 20562	5k6 5% 0,1W
3445	4822 117 10833	10k 1% 0,1W
3446	4822 117 10833	10k 1% 0,1W
3447	4822 117 10833	10k 1% 0,1W
3448	4822 117 10837	100k 1% 0.1W
3449	4822 117 10833	10k 1% 0,1W
3450	4822 117 11449	2k2 1% 0,1W
3452	4822 052 10828	8.2Ω 5% 0,33W
3453	4822 052 10828	8.2Ω 5% 0,33W
3458	4822 051 20472	4k7 5% 0,1W
3459	4822 051 20472	4k7 5% 0,1W
3460	4822 117 10833	10k 1% 0,1W
3461	4822 051 20102	1k 5% 0,1W
3462	4822 051 20102	1k 5% 0,1W
42xx	4822 051 10008	Jumper 1206
43xx	4822 051 20008	Jumper 0805
44xx	4822 051 20008	Jumper 1206 (except see next line)
4408	4822 051 20008	Jumper 0805
4409	4822 051 20008	Jumper 0805

5201	4303 308 75810	Coil
5202	2422 535 97353	680μH 10%
5203	2422 535 97353	680μH 10%
5204	3128 138 38610	Standby transformer
5205	4822 157 70436	8,2μH
5206	4303 308 75820	Relay DC 12V

6501	9337 175 71682	TLSV5100
6201	4822 130 31878	1N4003G
6202	5322 130 31938	BYV27-200
6203	4822 130 83338	LL4148
6204	4822 130 83338	LL4148
6205	4822 130 83338	LL4148
6206	4822 130 83147	DF06M
6207	9338 872 80673	BZX55-F22
6208	4822 130 34281	BZX79-B15
6209	4822 130 30842	BAV21
6210	4822 130 83338	LL4148
6211	4822 130 11421	BT151X-500R
6212	9339 530 90685	TZM-C20
6401	4822 130 30862	BZX79-B9V1
6402	4822 130 30862	BZX79-B9V1
6403	4822 130 34278	BZX79-B6V8
6404	4822 130 34173	BZX79-B5V6
6405	4822 130 31878	1N4003G
6406	4822 130 31878	1N4003G
6407	4822 130 31878	1N4003G
6408	4822 130 31878	1N4003G
6409	4822 130 31878	1N4003G
6410	4822 130 31878	1N4003G
6411	4822 130 31878	1N4003G
6412	4822 130 31878	1N4003G
6413	4822 130 31878	1N4003G
6414	4822 130 31878	1N4003G
6415	4822 130 31878	1N4003G
6416	4822 130 31878	1N4003G
6417	4822 130 31878	1N4003G
6418	4822 130 31878	1N4003G
6421	4822 130 83338	LL4148
6422	4822 130 83338	LL4148
6423	4822 130 83338	LL4148
6424	4822 130 83338	LL4148
6425	4822 130 83338	LL4148
6426	4822 130 83338	LL4148
6427	4822 130 83338	LL4148
6428	4822 130 30621	1N4148
6429	4822 130 83338	LL4148
6430	4822 130 83338	LL4148
6431	4822 130 83338	LL4148
6432	4822 130 83338	LL4148
6433	4822 130 83338	LL4148
6434	4822 130 31878	1N4003G
6436	4822 130 31878	1N4003G
6437	4822 130 30621	1N4148
6501	9337 175 71682	TLSV5100

7201	4822 209 15867	L4940V12
7203	4822 130 11418	TCDT1102G
7204	4822 130 44568	BC557B
7205	4822 130 60511	BC847B
7206	4822 130 44503	BC547C
7207	4822 130 11417	STP3NB60FP
7401	4822 209 32641	TDA2616Q
7402	4822 209 30095	LM833D
7403	4822 209 30095	LM833D
7404	5322 209 82941	LM358D
7405	5322 209 70225	LM393D
7410	4822 130 60373	BC857B
7411	4822 130 60373	BC857B
7412	4822 130 60511	BC847B
7413	4822 130 60511	BC847B
7414	4822 130 40981	BC337-25
7415	4822 130 60511	BC847B
7416	4822 130 60511	BC847B
7417	4822 130 60511	BC847B